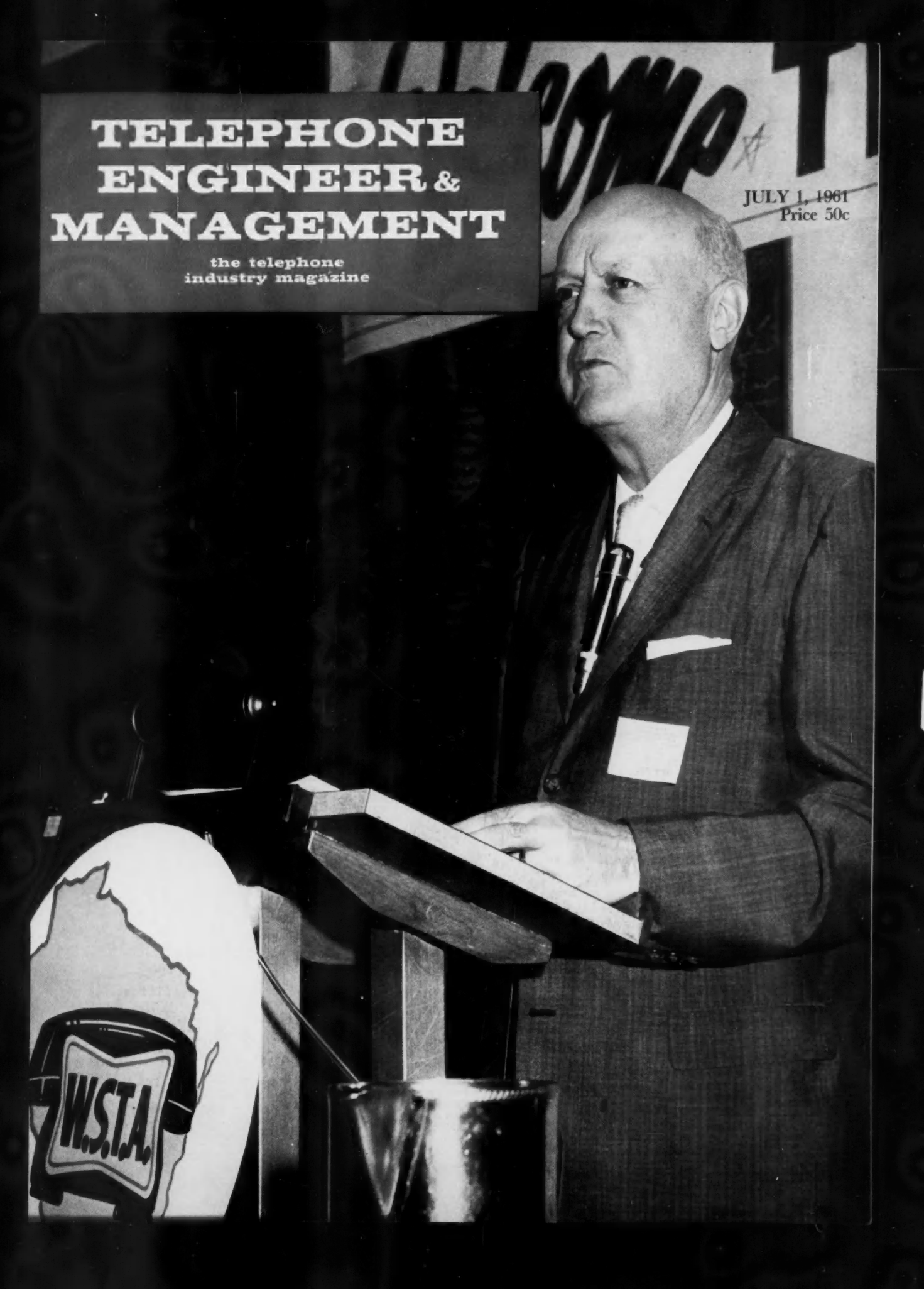
TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

JULY 1, 1961
Price 50c



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In May 1945 Cliff's prison camp was liberated, and he came home with the Distinguished Flying Cross, Air Medal with three Oak Leaf Clusters and Purple Heart.

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THE TE&M FRONT COVER

This year USITA President CLIFFORD C. PEARCE of Riceville, Ia., has traveled many miles and talked to hundreds of telephone industry members. Our front cover photo shows Mr. Pearce addressing the recent convention of the Wisconsin State Telephone Association. For complete story see page 53.

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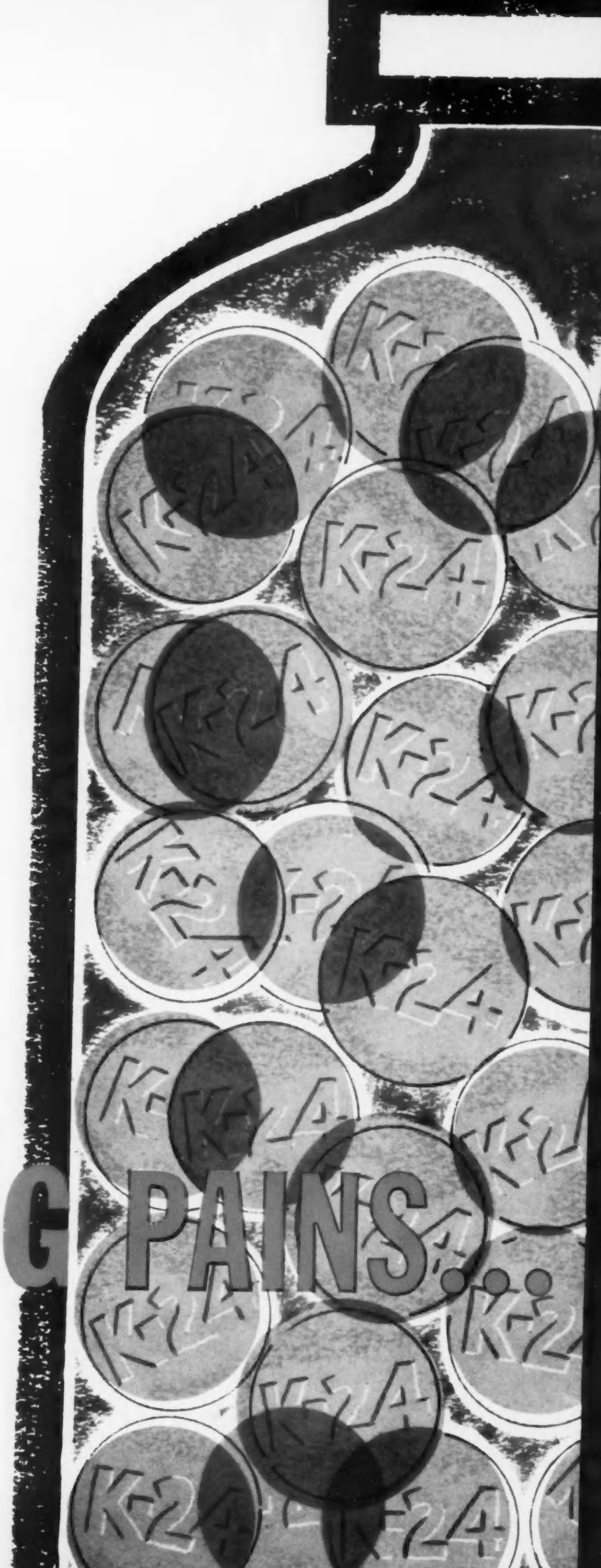

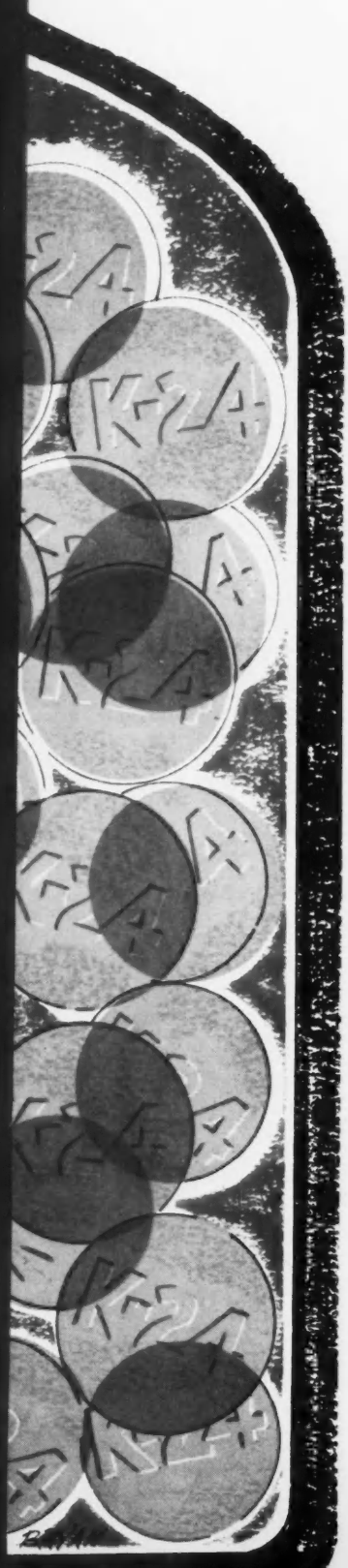

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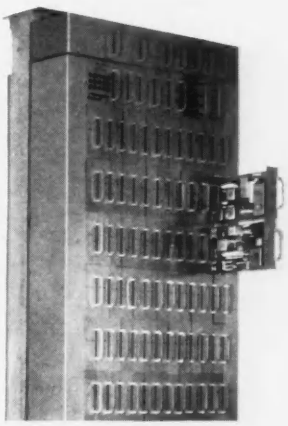

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GEORGIA Tel. Assoc., Corsair Motel, Jekyll Island, Ga., Sept. 14-15.

MICHIGAN Tel. Assoc., Pantlind Hotel, Grand Rapids, Mich., Sept. 19-21.

NEVADA Tel. Assoc., Stockmens Hotel, Elko, Nevada, Sept. 19-21.

NEW ENGLAND Tel. Assoc., Poland Springs Hotel, Poland Springs, Maine, Sept. 24-27.

WEST VA. Tel. Assoc., Oglebay Park Hotel, Wheeling, W. Va., Sept. 26-27.

USITA CONVENTION, Conrad Hilton Hotel, Chicago, Ill., Oct. 8-11.

SOUTH CAROLINA Tel. Assoc., Clemson House, Clemson, S. C., Oct. 23-24.

VIRGINIA Tel. Assoc., Roanoke Hotel, Roanoke, Va., Oct. 26-27.

OKLAHOMA Tel. Assoc. Skirvin Hotel, Oklahoma City, Okla., Nov. 8-9.

ALABAMA-MISSISSIPPI Tel. Assoc., Thomas Jefferson Hotel, Birmingham, Ala., Nov. 11-13.

FLORIDA Tel. Assoc., The Carillon Hotel, Miami Beach, Fla., Nov. 26-28.

NORTH CAROLINA Tel Assoc., Carolina Hotel, Pinehurst, N. C., Dec. 4-5.

WISCONSIN Tel. Assoc., Hotel Not Announced, Milwaukee, Wisc., May 8-9, 1962.

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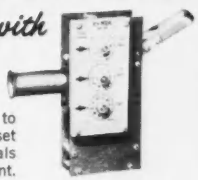

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NEWSLETTER TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

Dear Sir: July 1, 1961

ARIZONA COMMISSION APPROVES INCREASES IN MISCELLANEOUS CHARGES . . . The Arizona Corporation Commission has approved an application by the Mountain States Tel. & Tel. Co. for a revised schedule of charges for connecting, moving, and changing telephones. In addition, the company's proposal to compute overtime charges for intrastate long distance calls to the nearest penny, instead of downward to the nearest multiple of five cents, was approved.

The order, effective July 1, also calls for the elimination of report charges on intrastate person-to-person calls. New connection charges in the two largest exchange areas, Phoenix and Tucson, will be $7.50 for residence service and for each business line or telephone. Four and six-button key charges will be $10 and $15 for private branch exchange trunks. At all other exchanges in the state, the corresponding charges were set at $6, $8, and $12. At a brief hearing prior to the commission's action, no one appeared in opposition to the company's proposal.

COMMUNICATIONS EQUIPMENT VALUE SHIPPED IN QUARTER 10% ABOVE 1960 . . . Production of communications equipment in the first quarter of 1961 included 2,100,000 telephone sets, 984,000 lines of dial central office equipment, and 211,000 lines of dial PBX equipment, according to statistics made public last month which were compiled by the Bureau of the Census for the Business & Defense Services Administration.

A comparison of first quarter figures with the same period of 1960 showed a decrease of 12% in telephone sets, an increase of 3% in central office equipment, and a 3% decline in dial PBX equipment. The total value of all communications equipment shipped during the first quarter of this year amounted to $527,000,000, a 10% increase over the same period a year ago.

NEW YORK TEL. CO. AND CWA REACH AGREEMENT ON INITIAL CONTRACT . . . The New York Tel. Co. and the Communications Workers of America have reached agreement on a new contract covering about 24,000 plant employes in the Downstate and Upstate areas of the company for whom the union won collective bargaining rights in recent National Labor Relations Board elections.

The agreement was one of three reported last month in Bell System bargaining with the CWA. Settlements on wage increases under reopeners in existing contracts were reached in the Ohio Bell Tel. Co. and in the Cincinnati & Suburban Bell Tel. Co.

In New York the 33-month contract calls for wage increases for the plant group in the Downstate Area ranging from $2 to $4.50 and in Upstate Area of $1.50 to $4.50. Some additional top rate increases of from 50 cents to $2.50 are also provided for certain jobs.

Fringe benefit improvements include: an extraordinary medical expense plan, four weeks of vacation after 25 years of service, and group life insurance and pension plan improvements similar to those negotiated in other areas during the past year. The contract, which the company said will add $6,500,000 annually

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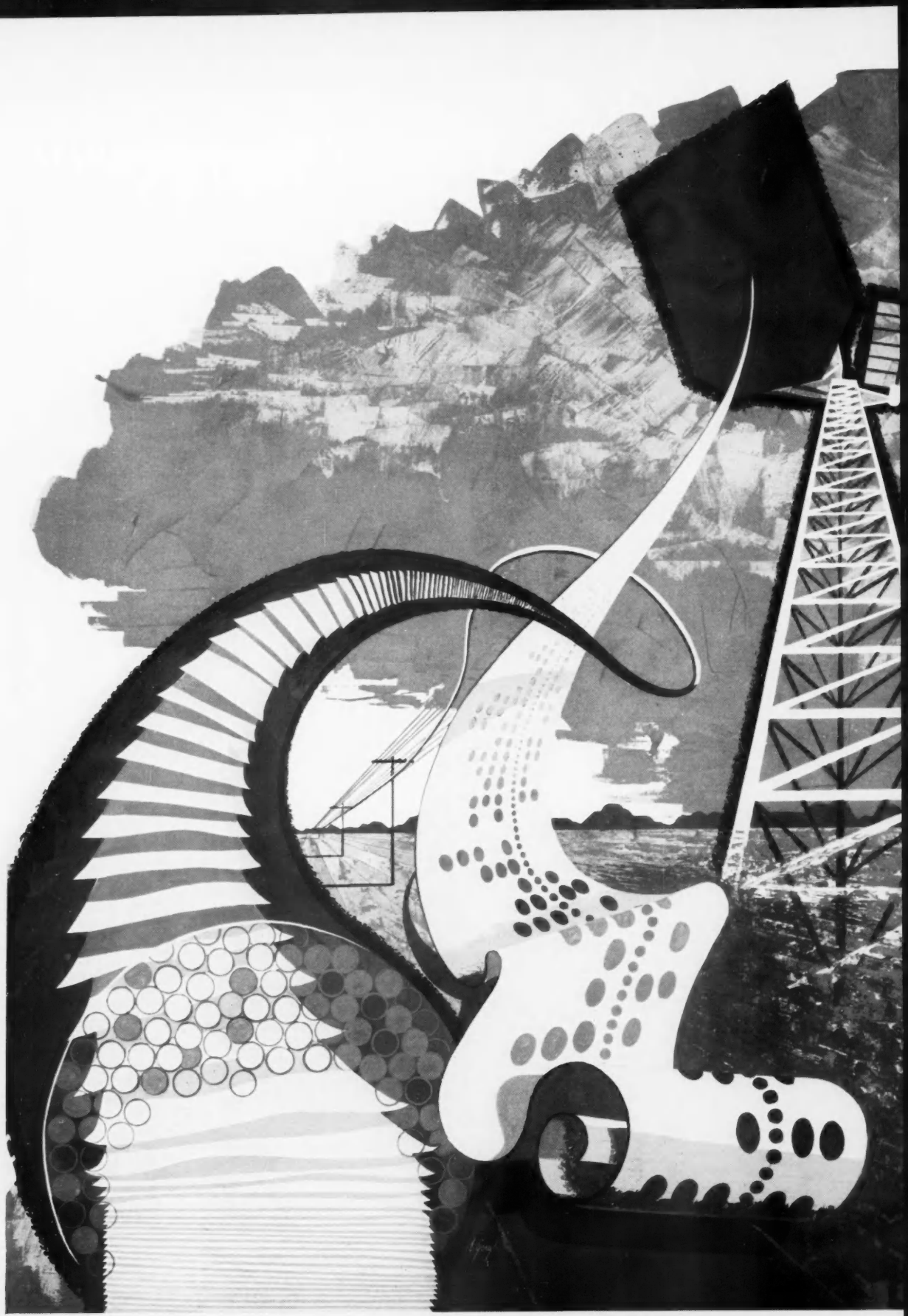

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(concluded from page 10)

to its operating costs, will have a wage reopener after nine months, and a second reopener 12 months later.

The Ohio Bell-CWA agreement provides wage increases of $1.50 to $3 covering 16,000 employes in all departments of the company. It also calls for shortening of traffic schedules from six to 5½ years and upward reclassification of seven towns in traffic and clerical, and 33 towns in plant. It also includes an extra $1 increase for service assistants and service observers. Cost of the increases was estimated by the company at $2,750,000.

The Cincinnati & Suburban Bell agreement also provides for increases ranging from $1.50 to $3 affecting about 2900 employes in all departments of the company.

R. I. BILL WOULD REQUIRE PHONE BOOTH SAFETY GLASS . . . A bill requiring that outside telephone booths be equipped with shatterproof glass has been passed by the Rhode Island House of Representatives and sent to the State Senate. The measure was sponsored by Rep. Hugo Ricci of Providence, who said the need for something stronger than the plain glass now shielding the booths was displayed recently when a youth was cut as an object was hurled against the booth he was using. Rep. John H. Chafee of Warwick, Republican minority leader, called the bill "sloppy legislation" upon learning from Ricci that it provides no penalty for non-compliance. Ricci replied that no one expects the telephone company not to comply and that the state director of public utilities would enforce the provisions. Ricci said it was his understanding that all of the company's present booths would have to be changed to meet a shatterproof glass requirement.

AGREEMENTS BETWEEN INDEPENDENT COMPANIES and CWA REPORTED . . . The Commonwealth Tel. Co., Dallas, Pa., and the Communications Workers of America last month reported agreement on a new 18-month contract covering 278 employes which provides for wage increases of seven to 10 cents for plant employes, and seven to eight cents for those in traffic and clerical. It also calls for upgrading of one town, and an extraordinary medical expense plan for employes and their immediate families.

The Central Tel. Co., Fort Dodge, Ia., and CWA have settled on a one-year agreement that provides for wage increases ranging from $1.50 to $3.50 weekly for the 106 affected employes. The agreement also reduces traffic schedules to 5½ years and improves the health insurance provisions.

NEW "TELEPHONE HANDBOOK FOR MANAGERS & PLANTMEN" . . . Last month TE&M published the first of a new series of reference handbooks for members of the telephone industry, featuring selected reprints of articles from regular issues of TELEPHONE ENGINEER & MANAGEMENT. Titled "TELEPHONE HANDBOOK FOR MANAGERS & PLANTMEN," and edited by John G. Reynolds and John S. Reed, the 116-page book presents articles discussing: Aerial Cable; Underground Cable; Station Installations; Plant Maintenance; Pole Lines; Rural Distribution Wire; and Telephone Service. Recent issue of Oregon Independent Telephone Association's Newsletter described the new book, and said "this should be on the desk of everyone concerned with up-to-date telephone service . . ." Prices are: 1-5 copies $2.00 each; 6 to 25 copies $1.75 each; over 25 copies $1.50 each. Send orders to: Educational Division, TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Ill.

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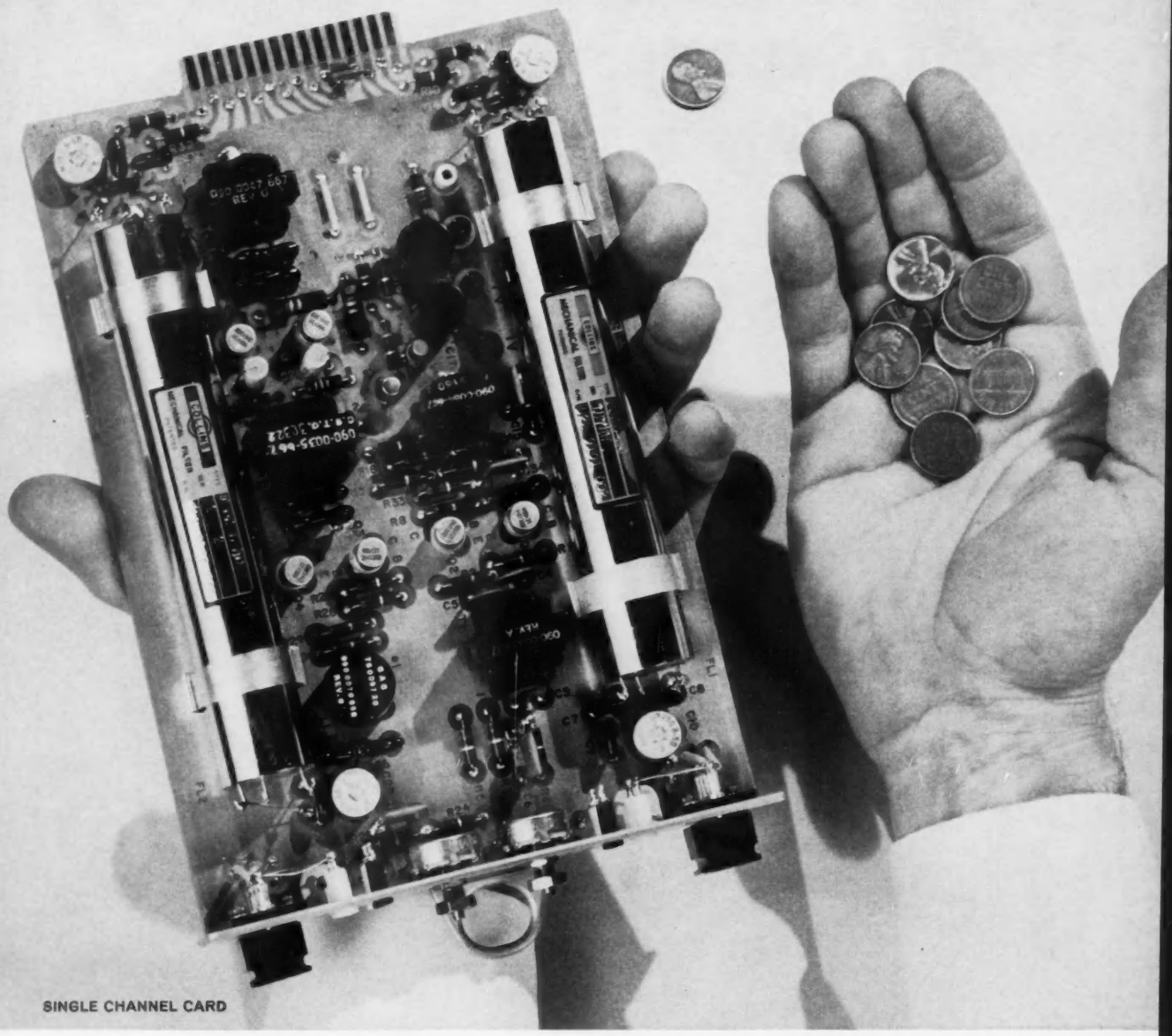

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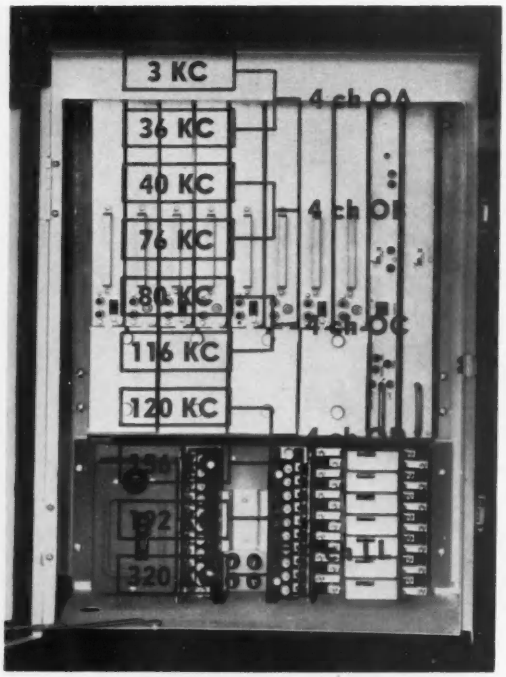

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INDUSTRY OBSERVATIONS

By L. A. GRITTEN

In The Mail

OUR reference to the Indiana Telephone Association's awards to those who perform outstanding acts of public service, brought a prompt response from Dan De Hayes, executive vice president of the Ohio Independent Telephone Association. The Ohio I.T.A.'s "Beyond The Call" program, says Mr. De Hayes, was the first of its kind in the Independent field.

The most recent Ohio I.T.A. award went to Willard Jenkins, a cable splicer with the General Telephone Company of Ohio; his courageous assistance saved five youths from drowning in a lake near Celina.

We should like to hear from other Independent associations in regard to their "awards for heroes" programs.

Versus Planned Economy

ON JANUARY 1, 1950 there were 2,112,728 telephones in the Federal Republic of Germany, 4.4 per 100 population. Ten years later they had 5,516,226 telephones, 9.98 per 100 population. That is merely one index of a brilliant recovery from appalling defeat.

A decade ago, in the formative days of the new republic, the Germans were still in dire distress, a people of broken families and broken beliefs, living in broken cities, mired in the wreckage of war.

The Germans are clever and industrious. They are also tragically docile. They will follow to almost any extreme the orders of a strong leader, a Bismarck, a Wilhelm II — or a Hitler. Yet, fortunately for the world, the rulers of the new Federal Republic had a faith in human individuality that our own leaders appear to have lost. How they worked out their salvation is ably described in the June 5 issue of U. S. News & World Report. That article should be "required reading" in our schools.

In 1951 a group of top-ranking economists from the United States studied the plight of the West Germans. They formally recommended to the German government a planned government-controlled economy of the New Deal variety familiar to us.

Konrad Adenauer, Ludvig Erhard and other German leaders wanted no such expedients. They chose to disregard the U. S. economists' advice. They rejected most of the proposals for state control. They relied mainly on individual enterprise, with its incentives, its rewards and its risks. The result has been one of the most astonishing recoveries ever made by a broken nation in a war-ravaged country.

Its major significance to us is this: Many of the learned American economists, whose ideas Adenauer rejected, are today the advisers of President Kennedy; and what they proposed for Germany in 1951 was medicine out of the same Keynesian planned-economy bottle that they are giving to us now.

Shields For Achilles' Heels

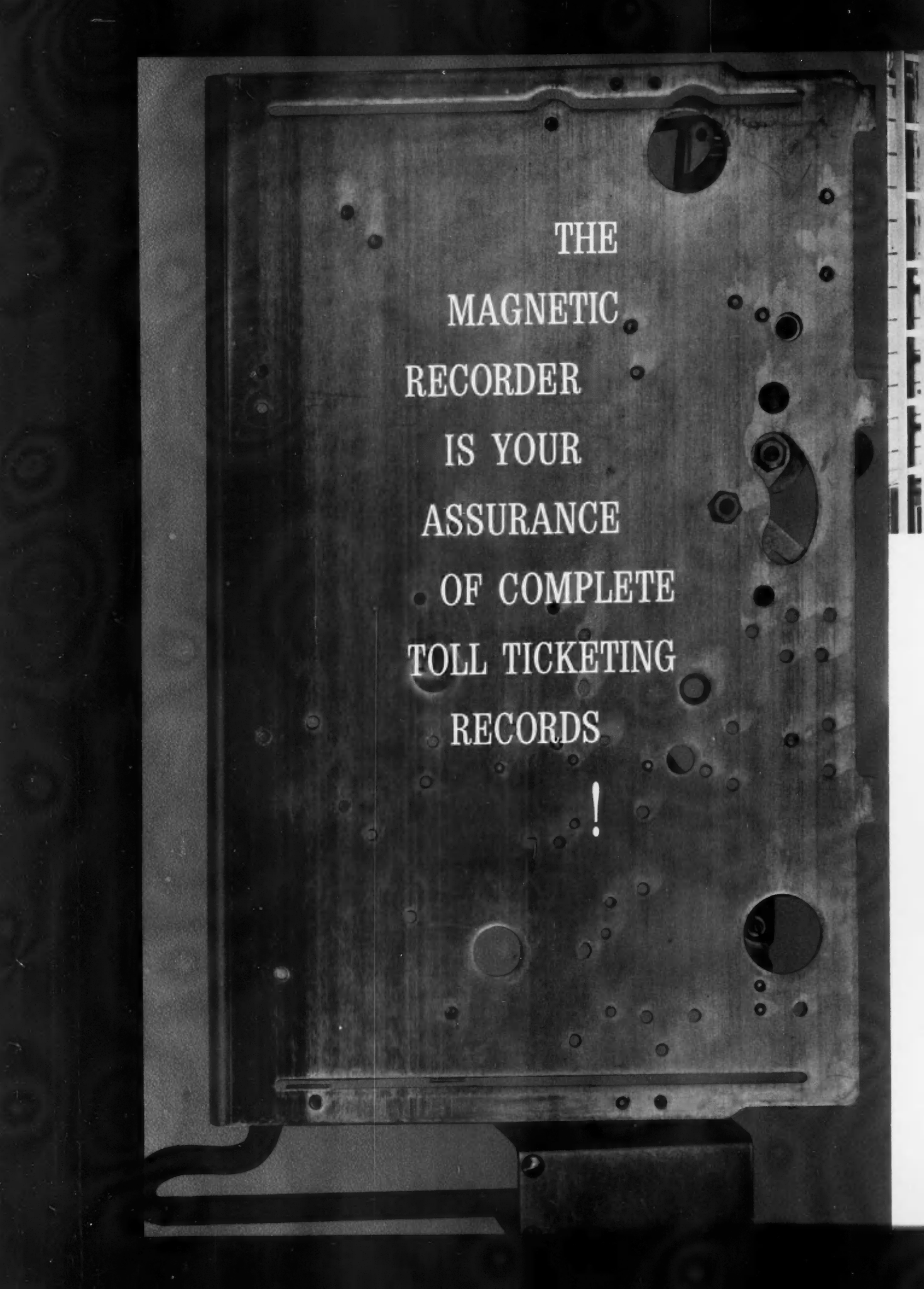
THE sabotage of Mountain States Telephone & Telegraph Company microwave installations should result in a stricter guard of all telephone plants. It is time. After V-J Day, many companies heaved a sigh of relief and let down their precautions. Today, most telephone plants are open to anyone with the nerve to walk in and sense enough to say something plausible. If he wears overalls and carries a tool-box large enough to hold an incendiary bomb, he is less likely to be challenged.

We are at war. The enemy proclaims that he will destroy us. He is progressively making good his boasts. Thus far, we are losing. We are be-

Please turn to page 22

"CHARLIE" by Jim Counts

CHARLIE, HOP IN TH' PICK-UP AND RUN OVER TO MR. CUSHAW'S HOUSE.. ..HE WANTS TO SEE YOU.
TH' PRESIDENT OF TH' COMPANY... NOW WHAT WOULD HE WANT TO SEE ME ABOUT? ... MAYBE HE WANTS MY ADVISE ON TH' RATE CASE ... TH' BANK LOAN ...?? OR ...
STOCKS AND BONDS !!! FINANCE ?? BUSINESS ? INVESTMENTS.. MONEY ? $.
CHARLIE ... I'M GONNA HAVE A POLE PLACED FOR MY NEW T.V. ANTENNA AND I WANT YOU TO DIG A HOLE RIGHT HERE!
PLOP!
Jim Counts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IS YOUR
ASSURANCE
OF COMPLETE
TOLL TICKETING
RECORDS
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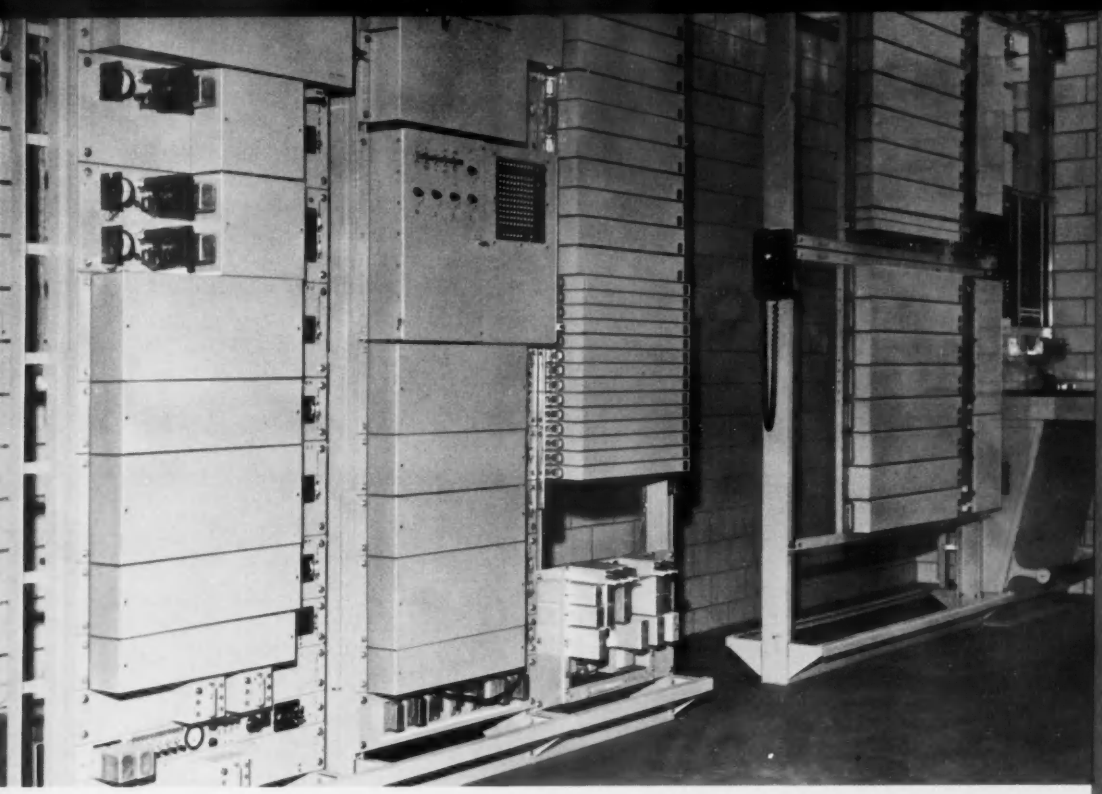


Installation of XY Toll Ticketing equipment, with data link, at West Richfield, Ohio.

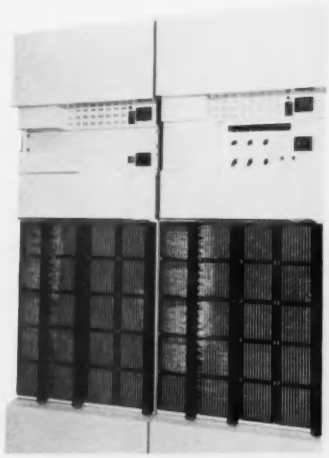
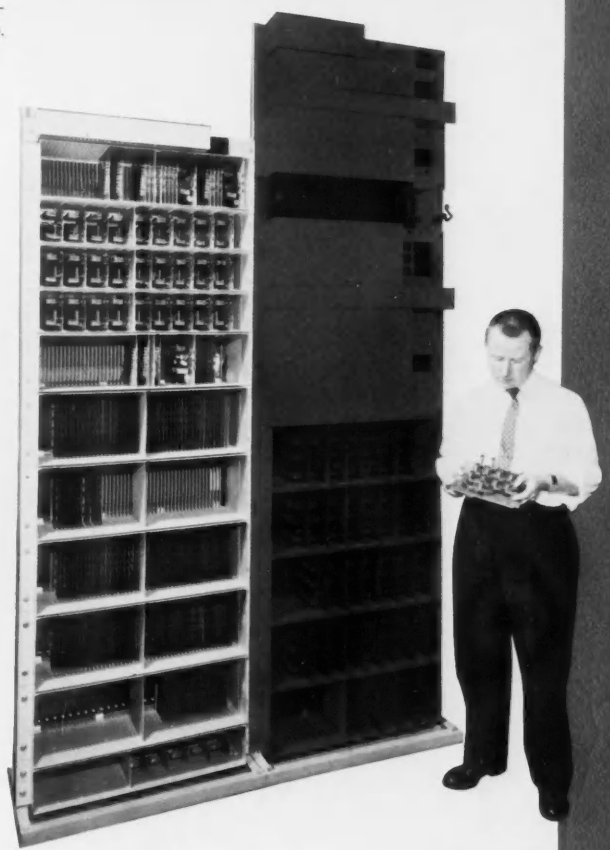


Illustration shows dual route interpreters which convert called number into route direction.



Readout equipment on right takes information from magnetic tape and programs it into chargeable information. This information is then converted by the equipment on the left into actual charges.

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The Stromberg-Carlson XY® Toll Ticketing system is the *only* independent system that gives you 100% recording and readout. Everything is recorded, nothing is lost.

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Stromberg-Carlson Toll Ticketing is a cost-saver in other ways. Magnetic recording saves time and labor because it needs virtually no manual attention. The system requires a minimum of maintenance . . . takes a minimum of space. It's ready *right now* to bring you operator savings on P.P.C.S. calls.

Let your Stromberg-Carlson representative show you in exact detail how XY Toll Ticketing can brighten your toll ticketing operation through 100% magnetic recording and readout.

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GDD

GENERAL DYNAMICS | ELECTRONICS

TELECOMMUNICATION DIVISION • ROCHESTER 3, NEW YORK

"Industry Observations"

(Concluded from page 17)

ing forced into a position comparable to that of Britain in 1940 — and we do not appear to have a Churchill.

In this war, every telecommunication unit is potentially an essential weapon. The sooner we impose and maintain rigid precautions throughout our industry, the better for our health.

Your Share In ASTIA

IN THESE frenetically changing days an aspiring telephone engineer must thrust forward into subjects far beyond the scope of his immediate duties. A recent extension of Office of Technical Services activities will help him.

In the future, the O.T.S. Government Research Reports will include the unclassified sections of Armed Services Technical Information Agency bulletins. This will add annually to our scientific and engineering resources some 20,000 technical reports that hitherto have not been available to the public. They include much material of direct importance to telecommunication engineers.

Miscommunication

A SAT. EVE. POST article about secretaries ("The Girl in the Office," by Ralph Knight) stresses the necessity for clear telephone diction. Business may be lost and friends estranged by faulty speech and manners in telephone conversation.

That of course is not confined to secretaries. Most of us know men in our business whose speech and manners withhold the success that their technical abilities warrant. Conversely, some quite mediocre people ooze near to the top by the lubrication of agreeable personalities.

The coming changes in telecommunication will strengthen this truism. In the world of tomorrow we are entering, most of our contacts will be by videophone. Our voices, our inflections, our personal quirks, will be more important than ever. That will call for the highest possible quality of speech transmission. Despite our advances, there is still far too much loss of timbre between the mouth and the distant ear.

To speech transmission difficulties, we must add the erosion and distortion of thought. We recall with glee our share in an army test. It is a very old test. Caesar's Legionaries used it in their training; and they probably inherited it from Alexander the Great. A company of men are strung out in a huge circle, spaced so far apart that each man can hear only the man next to him. A simple message, in few words, is passed man-to-man around the circle. What the last man receives usually bears little resemblance to the original message.

Then there was that famous Japanese student who was asked to interpret the adage "Out of sight, out of mind." He replied: "The invisible is the insane."

We have plenty of that sort of miscommunication to contend with in our everyday business.

Fair Use vs. Misuse

HUGH R. JACKSON, president of the New York Better Business Bureau, attacking the swindlers who use the telephone to promote crooked charities and the like, says: "Never give in response to telephone solicitation."

Ouch, that one hurts. We recall the thousands of dollars we collected by telephone through the years, for Red Cross, Community Chests, etc., not to mention sales of directory advertising and various telephone company services.

Mr. Jackson's advice ties in with the rapid growth of "Non-list" applications from people who refuse to be annoyed any more by telephone misuse. If we fail to squelch the telephone pests and parasites, as distinguished from the proper and legitimate users of telephone solicitation, we shall do ourselves and our subscribers a grave disservice.

Lunar Atlas

A DESCRIPTION of another Soviet triumph, of interest to every camera addict, comes from Russia via O.T.S. It is "Atlas of the Far Side of the Moon," By N. P. Barabashov, A. A. Mikhaylov and Yu N. Lipskiy, of the USSR Academy of Sciences. (English translation: 61-21955, O.T.S., U. S. Dept. of Commerce, Washington, D. C.)

In October, 1959, while their space observation rocket was orbiting the moon, Soviet astronomers radio-activated the camera equipment. Special 35 mm film was automatically processed. The developed images were radioed back to the Soviet observatories. Some thirty photographs were received, despite difficulties due to weightlessness, processing the film at high temperatures, and the necessity to develop, fix, wash and dry the 35 mm film with "a special small size apparatus."

From these photographs, the lunar maps (scale 1:10,000,000) were prepared.

After this, we are prepared to believe anything.

No Vision, The People Perish

FIRST came the big city telephone directories with huge alphabet sections in small print. (Did you ever try to find a particular A. Johnson in several columns of 8-point type?)

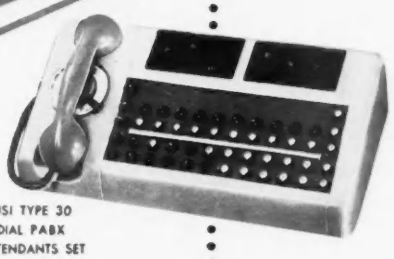
After these had done their worst, there followed the *Yellow Sections*, eye-torturing conglomerations of space ads and odd small type, weirdly confused with artistically feeble but optically dangerous half-tones.

Now comes the ultimate infliction, a black-type-on-dark-green index to the Yellow Pages, a plague to cure a cancer. Anything the other ophthalmic horrors have not done to ruin our vision, will be achieved by attempts to read small black print on a Creme de Menthe background.

Question before the meeting: Is the telephone industry working in collusion with the optometrists in a campaign to sell more eyeglasses? The Ayes have it — but the eyes don't.

"THE SHAPE OF THINGS TO COME"

already here!



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No. 100 — "PROGRESS WITH THE ALL-BURIED SERVICE CONCEPT," by JOHN S. REED. This 24-page article thoroughly discusses and illustrates the materials, tools, and technology involved in placing rural and urban telephone service Underground. Price: 1-5 copies, 50¢ ea.; 6-25 copies, 40¢ ea.

No. 101 — "A FUNDAMENTAL APPROACH TO VNL," by C. D. EHINGER. This 8-page article defines terms, explains fundamentals, and shows how to calculate VNL transmission design objectives. Price, 1-5 copies, 50¢ ea.; 6-25 copies, 40¢ ea.

No. 102 — "REGULATION," by JOSEPH J. BROWN. This 16-page article by the Chairman of the Nebraska State Railway Commission discusses: (1) "Regulation and Public Interest;" (2) Regulation and Service;" (3) "Regulation and The Investor;" and (4) "Regulation And Free Enterprise." Prices. 1-5 copies, 50¢ ea.; 6-25 copies, 40¢ ea.

No. 103 — "TELEPHONE HANDBOOK FOR MANAGERS AND PLANTMEN." A 116-page book featuring reprints of selected TE&M articles discussing: Aerial Cable; Underground Cable; Station Installations; Maintenance; Pole Lines; Rural Distribution Wire; and Telephone Service. Prices. 1-5 copies $2.00 each; 6 to 25 copies $1.75 each; over 25 copies $1.50 each.

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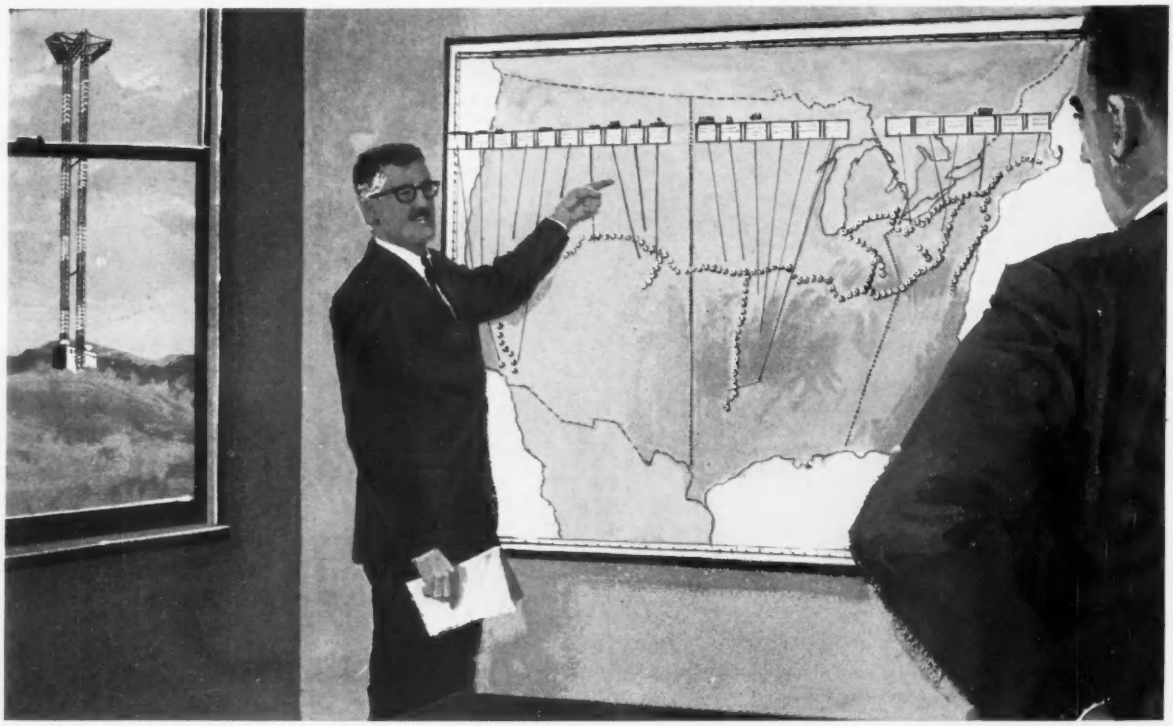


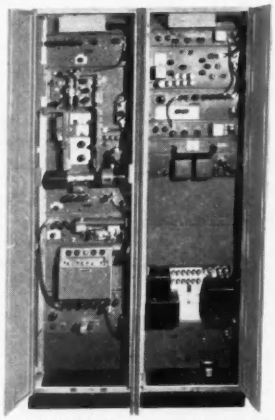
Introducing the RCA MM-600 Microwave for high density, long-haul systems

New RCA MM-600 Microwave Equipment has been designed to meet the exacting transmission requirements of Common Carriers. Operating in the microwave band of 5925-6425 mc, it will carry 600 voice channels or an equivalent video signal for distances in excess of 3000 miles.

This new equipment will be used by Western Union Telegraph Company for their new Transcontinental Microwave System consisting of over 200 stations. This gigantic communications complex will provide facilities for data handling, facsimile, telegraph, television and other services.

The MM-600 meets or exceeds the CCIR/CCITT performance standards for International telephone and TV services. A controlled baseband spectrum up to 10 mc is available for other video applications. Standard r-f channel allocations fully coordinate with the Bell TH system and other allocations can be provided to meet individual requirements. Baseband combiners and switches are available to provide either diversity or fall-back circuit protection. Service Channel and Supervisory Equipment is engineered to meet individual system requirements. Continuous status reports from each station are transmitted to the control stations by a computer type code of high security.

The MM-600 uses a conservatively chosen combination of solid state and vacuum tube devices to insure top performance and long-term stability. A newly developed traveling wave tube using a replaceable glass envelope is used in the transmitters for long life and low replacement cost.



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TELEPHONE ENGINEER
AND MANAGEMENT'S

EDITORIAL

COMMENT

"That Regulatory Lag"

REGULAR readers of TE&M's editorial page are well aware of our strong belief that one of the disturbing features of the telephone industry's attempts to protect its financial integrity in an inflationary economy is the great lag between the time of filing a rate proceeding and the effective date of a Commission order fixing rates for the future.

In view of our past comments regarding "Regulatory Lag," we were particularly pleased a few weeks ago to note that Richard C. Byrd, Chairman of the State Corporation Commission of Kansas, also recognizes that the lag in regulatory procedure is most damaging to a utility during periods of inflation.

Chairman Byrd gave due recognition to this fact in an address presented before the 10th annual Joint Convention of the Kansas and Missouri Telephone Associations when he emphasized that "*perhaps the most unfortunate aspect of regulation and a subject of justifiable criticism by utility management is what all of us commonly call the 'regulatory lag'.*"

"*Authorization to collect increases in revenues,*" Chairman Byrd stated, "*often tardily trails the need for those increases. Whatever is lost by regulation's failure or inability, to keep authorization abreast of needs is often unrecoverable.*"

There is much evidence at hand to prove that rate case procedures adopted by a commission years ago, when the level of expenses and also the purchasing power of the dollar were both relatively steady, simply do not meet the urgent necessities of telephone companies in these days when expenses mount rapidly and the buying power of the dollar can go down overnight.

It is fortunate for the telephone industry as a whole that a number of commissions are alert to the detrimental effect of the present inflationary situation upon the utilities under their jurisdiction, and also upon the customers of those utilities, unless prompt rate relief is given to companies needing it.

These commissions, with due regard to the rights of and benefits to the public served, act vigorously and promptly — and also non-politically. In so acting they are, we think, serving properly and diligently the purpose for which they were created.

The attitude of that type of commission, and the telephone rate situation in general, was stated succinctly and forcefully a few years ago in a decision by the California Public Utilities Commission.

The Commission said that the company "*is the victim of inflation, as is the public and business generally, and its prices must be kept current if it is to furnish the type of service the public is demanding.*"

The truth of this is apparent. There can be no dispute over the basic fact that, if a telephone company is to properly serve its public, it must have sufficient revenue to pay its expenses, depreciation and taxes, and to have enough left over to meet its interest, pay dividends sufficient to attract new capital, and retain a reasonable amount of surplus.

The word "current," as used by the California Commission, is important. A telephone company cannot obtain higher rates before it needs them. When it applies for them, it needs them then. The longer it is delayed thereafter in obtaining them, the worse its situation becomes — and the greater its inability to serve its public. "Time is of essence" — which means, in this case, that it is not only the higher revenue that is important. It is also important that the revenue increase be made available as soon as possible.

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TELEPHONE ENGINEER
AND MANAGEMENT'S
WASHINGTON
OBSERVATIONS

Space Communication Discussed at FCC Meeting

FCC TO ISSUE 2ND REPORT

TELPAK, WATS, WADS, and satellite communications continue to occupy the stage in the regulatory field in Washington . . . General Tel. requests FCC modification of its first report on space communications . . . AT&T's chief engineer supports FCC's first report . . . FCC suspends WADS tariff.

By ROLAND DAVIES and FRED HENCK

THE various new service offerings of the American Telephone & Telegraph Co. — Telpak, which was treated at length in past issues of TE&M, Wide Area Telephone Service, and Wide Area Data Service — and satellite communications continue to occupy the stage in the regulatory field in Washington, and now it is the turn of the question of space systems to come front center again.

The latest move in the government-industry effort to get a satellite communications system in operation was a meeting called by the Federal Communications Commission to discuss plans for getting a joint venture started after the Commission had announced that it appeared the best approach to establishing a system would be under the aegis of the international common carriers in the field.

Nevertheless, manufacturers and others who filed statements with the FCC were invited to the meeting, along with the carriers, and at that gathering the most surprising development was the changed position of the U. S. Department on the subject.

The previously adamant position of the Attorney General's office to a satellite communications joint venture not open to part ownership by equipment manufacturers appeared to have been moderated somewhat at the FCC-sponsored session.

A spokesman for the Justice Department Antitrust Division told the Comimssion that if it adheres to its views favoring ownership by international common carriers only, and the base of ownership is not broadened, "I think the plan could be worked out so that it would be acceptable to the division."

It appeared, judging from comments by both industry and government representatives at the meeting, that the most likely next step is the establishment of an ad hoc committee of international carriers — with hardware manufacturers assisting in some capacity and with the Justice Department and the FCC providing "guidelines" from the government — to begin specific discussions looking toward a joint venture.

FCC Chairman Newton W. Minow made it clear that the Commission's first order of business will be to dispose of a petition for reconsideration of the first report — the one which set forth the view favoring a system owned by international carriers — filed by Communications Satellites, Inc., a General Electric Co. subsidiary. At the same time, he indicated the FCC will issue its second report, based on the disposition made of the ComSat petition and the comments made at the early June meeting

Gen. Tel. Requests FCC Modification Of 1st Order

MEANWHILE, the FCC has received another request for modification of the first report. The General Telephone & Electronics Corp. asked that the distinction between domestic and international communications common carriers, as it relates to participation in any committees set up and in the ultimate joint venture, be eliminated from the first report. It also requested the

FCC to regard it as an international carrier, in view of its operations in British Columbia and the Dominican Republic, and its minority interest in the Philippine Long Distance Telephone Co.

General, in its petition for modification of the first report, said that a satellite system probably would be used for domestic traffic, as between the continental U. S. and Alaska and Hawaii, and for transcontinental communications. It added that "apart from its substantial international operations," the fact that the General System operates 4,000,000 telephones in 31 states "would be a sound basis upon which the Commission should determine that General would be entitled to participate in any industry committee set up to study and implement a commercial common carrier satellite communications system."

Permitting domestic carriers to participate should not be any "insuperable" burden, GT&E declared, since the only other ones filing were the American Telephone & Telegraph Co., Western Union, and Hawaiian Telephone. It urged that, in addition to eliminating the distinction between domestic and international carriers, "the FCC should modify the first report to conclude that it would be desirable for both types of carriers to participate in any joint venture."

The Justice Department's Antitrust Division told the FCC that "As the plan for joint action is developed, we urge that the Commission consider the desirability of expanding the base of ownership of the satellite communication system. We believe that a further expansion of ownership and participation in the joint venture will reduce the possibility that the system will be controlled by a single company, and that a wider diversity of ownership will promote research and development in the satellite communications field.

"The Department of Justice is desirous of assisting the Commission in any way possible in order that this project may move forward. We will lend whatever assistance is necessary to help work out a method whereby all conflicting considerations regarding this matter may be accommodated in a manner consistent with the overriding national interests in establishing a workable system at the earliest possible date."

AT&T Supports FCC's 1st Report

FOR the nation's major communications carrier, Vice President and Chief Engineer James E. Dingman of AT&T supported the FCC's first report as sound. He remarked, "We fully accept the conditions which this Commission has indicated it will impose on any joint venture which may be formed and upon its continued operation. Indeed, we believe that the first report defines a framework of safeguards which should fully serve the public interest.

"One fact should be kept uppermost in mind. The foreign communications agencies will have at least an equal interest in the satellite system itself, for every message that originates in the U. S. terminates abroad, and vice versa. For this reason, this country's leadership can only be exercised through the prompt use of our technological advantages in this field to propose a system which will be acceptable to and have the support of the principal foreign agencies involved."

He added, "We think discussions between international carriers should be commenced very promptly and should be grounded on certain common understandings, namely, that time is a critical factor; the system should be reasonably within current technology: the system must provide service, quality, and reliability comparable to that available over existing facilities for all services; the system must be available for use of all International carriers, and provide facilities suitable for the communications services each may be authorized by the (FCC) to render."

FCC Suspends WADS Tariff

MOVING away from the subject of satellite communications, and "getting back to earth," the FCC has suspended for three months the interim wide area data service tariff of the American Telephone & Telegraph Co. in what will probably be the forerunner of a lengthy investigation by the Commission.

Under the action the tariff is suspended for a 90-day statutory maximum, until Sept. 8.

The interim tariff's points of service were principally geared to the operations of Delta Airlines, although others "similarly situated" would also have the service available to them under the initial filing. It was submitted as a "precursor" to the regular WADS tariff, expected in late 1962, when the teletypewriter exchange service network is concerted to automatic operation, and presumably other service points, geared to other customers, would be added during the interim.

It was evident that the investigation ordered by the FCC could not be completed within the 90-day suspension period — under the circumstances, it is doubtful whether it will even have got off to a substantial start.

The suspension, for the moment affecting only Delta and reportedly not immediately critical to it, presumably may ease future regulatory problems which have arisen in similar situations where the FCC launched investigations of tariffs but let them go into effect on the dates filed without relatively brief initial suspensions. In any event, this is the view held in some quarters at the Commission.

An investigation of the WADS tariff obviously will require much longer than the three-month period, particularly in view of the long-range timetable established for full institution of the service.

The Commission said it appears that "the rates for developmental line switched service are not based on the cost of rendering that service, but on estimated costs of rendering WADS in 1963 on a nationwide basis, and that the provision of developmental line switched service cannot be justified independently of AT&T's intentions to make an offering in the near future of WADS."

A TELEPHONE ENGINEER
AND MANAGEMENT
REPORT ON

PROTECTION

Let's Look At Telephone Protection Practices

CHAPTER THREE
OF A NEW
TE&M REPORT

When we are busy, we sometimes need to be reminded of fundamentals. Consistently applying the underlying principles of EACH of your telephone work assignments helps you to be as good all of the time as you are some of the time. This timely article discloses sources of standard telephone protection and safety information that deserve to be better known and used because such facts are indispensable for completely satisfactory results. (Parts One and Two of this article appeared in the May 1 and June 1 issues, respectively, of "Telephone Engineer & Management.")

By T. DeWITT TALMAGE

THE TWO preceding parts of this article (a) explained the need for a review of the more frequently encountered concepts of telephone protection and safety practices and (b) discussed current questions and their answers pertaining to convenient ways of becoming better acquainted with basic information on this undeniably practical and important subject.

This portion of the discussion, based on a widespread survey, will outline certain problems and some tested solutions which will demonstrate by actual example techniques that are being used successfully to obtain at least a "working knowledge" of essential phases of telephone protection and safety work.

Why should one actively concern himself about this subject? What do you stand to gain if you do?

One good reason that justifies your becoming more familiar with basic telephone protective and safety requirements *themselves*, can be summed up in these crammed-full-of-meaning words: The possession of this vital knowledge will assist you in being as good *all* of the time as you are *some* of the time.

Another businesslike way of looking at this elemental question "What's in it for me?" is that *the better you know this part of your job the more surely you will find this knowledge working for you instead of against you.*

More than this — if more is needed — is the encouraging fact that this understanding attitude can well keep you from going to your grave before your normally allotted time in the telephone industry — and on earth — has transpired.

There is more in the statements included in the three previous paragraphs than meets the eye. These statements are worthy of being reread a time or two by those who (a) believe that satisfactory job performance is not an accident and (b) are further convinced that success comes to those who take the trouble to prepare themselves for it.

How does one start to modernize and extend his working knowledge of this integral part of all telephone plants?

First Two Steps

SPECIFICALLY, the previous installments of this article included detailed instructions for implementing two steps required to start obtaining up-to-date telephone protection and safety advice. In a nutshell, these two previously described steps were: one, procure and study a copy of the "Code for Protection Against Lightning," and, two, obtain indexes of all current codes and standards, and related publications, materials, and

services available from such typical sources as: National Safety Council, American Standards Association, American Institute of Electrical Engineers, National Fire Protection Association, and the National Bureau of Standards of the U. S. Department of Commerce.

How to utilize these indexes (some of which are rather extensive in scope) to your best advantage is explained later on.

However, before going further into specifics, it will be found helpful to examine some general situations that should not be ignored. The early disposition of bothersome questions of a general sort will do much to "clear the track" for you to more promptly attain most, if not all, of the desirable objectives that have been outlined so far.

Facts Overcome Stumbling Blocks

AT THIS point then, let's allay some uncertainities that might conceivably turn into discouraging stumbling blocks. These stumbling blocks can defer, if not prevent, deserving individuals — and, therefore, their companies — from benefiting from the results of refreshing and updating their grasp of safety and protection fundamentals. In this connection, it will be found of assistance to look briefly at several matters that have been misunderstood in some places in the past and, from their very nature, can be expected to create similar confusion in the future.

Regrettably, this type of unnecessary confusion can cause some people to hesitate and, even, to balk at taking the logical third step in this program that is aimed at getting the right amount of the right sort of answers on the job in time to use them effectively.

This generally underestimated but nevertheless realistic problem arises from such causes as unfamiliarity with closely-linked things as (a) the purposes and objectives and (b) the methods used to operate the various associations that sponsor and distribute the systems of principles, rules, and codes that, by now, should be of active interest to each reader. Oftentimes the uncertainty encountered by potential users of these source documents and basic references is merely haziness or a doubt about *who* is eligible to receive *what* services from *which* organization. The sort of facts needed to resolve such quandries are described next.

Those who are curious and others who are just downright careful want — and have a right — to know enough about organizations with which they do business to have confidence in them. Some prudent individuals require complete confidence in an organization itself before they are ready to consider the impartial nature and usefulness of that organization's recommendations, reports, and other publications.

To put it bluntly, is it an unbiased source of information or does it have some ax to grind? This is a fair question and it requires an answer.

Sources Of Impartial Guidance

FROM THE primary standpoints of impartiality, conservativeness, and authoritativeness, the information and guidance that you can get from the organizations mentioned throughout this article meet the criteria set by the more progressive and discerning individuals and companies in this country. Those who are not accustomed to taking someone else's word for such matters may wish to measure the dimensions of this observation and its applicability to their own local situation. If so, some straightforward ways of doing this are suggested in several of the following paragraphs.

Certainly, when you want information about current policies that are behind the services furnished by an association, one way that it can be obtained is by reading the formal articles founding that association. That is, its constitution and bylaws officially state its purposes and objectives in more or less general terms. Copies of an association's constitution and bylaws, of course, are readily available for the asking.

However, this simple and obvious approach does not always disclose the whole story that often is needed or desired because many routine operational rules and regulations, of considerable interest and consequence, are not necessarily spelled out in sufficient detail in such general articles. As a result, many associations have prepared supplemental, sometimes called special, publications that interpret and enlarge upon the precise nature and form of the services that they can furnish to you as well as the terms and conditions that apply.

Again, like the convenient availability of copies of associations' constitution and by laws, these highly informative supplemental and special publications[10] are furnished with out charge by each association to interested parties upon request. This material is worth obtaining and studying because it will clear up a variety of frequently posed questions.

Nevertheless, a question of immediate concern that should be brought up and settled at this point, has to do with one facet of associations' operating methods. That is, it will be of interest to establish whether or not an individual or his company must be a member of an association to be eligible *to share* in that organization's benefits —such as obtaining its published standards, codes, reports, and other services of assistance in getting the most satisfactory performance results in the telephone industry.

In other words, here and there the impression is encountered that only those who are direct-supporting members of an association are entitled to any serious consideration from it. While no two associations' service policies are necessarily identical, still there may be certain services that are limited to association members. However, this qualification or restriction does *not* apply to directly securing any of the helpful publications mentioned in this discussion. ***Please turn to page 48***

[10]*The titles of two such enlightening publications, picked at random, are NSC's 20-page booklet, "What Is The National Safety Council?" and the NFPA's 6-page brochure, "The Story Of The National Fire Protection Association, International."*

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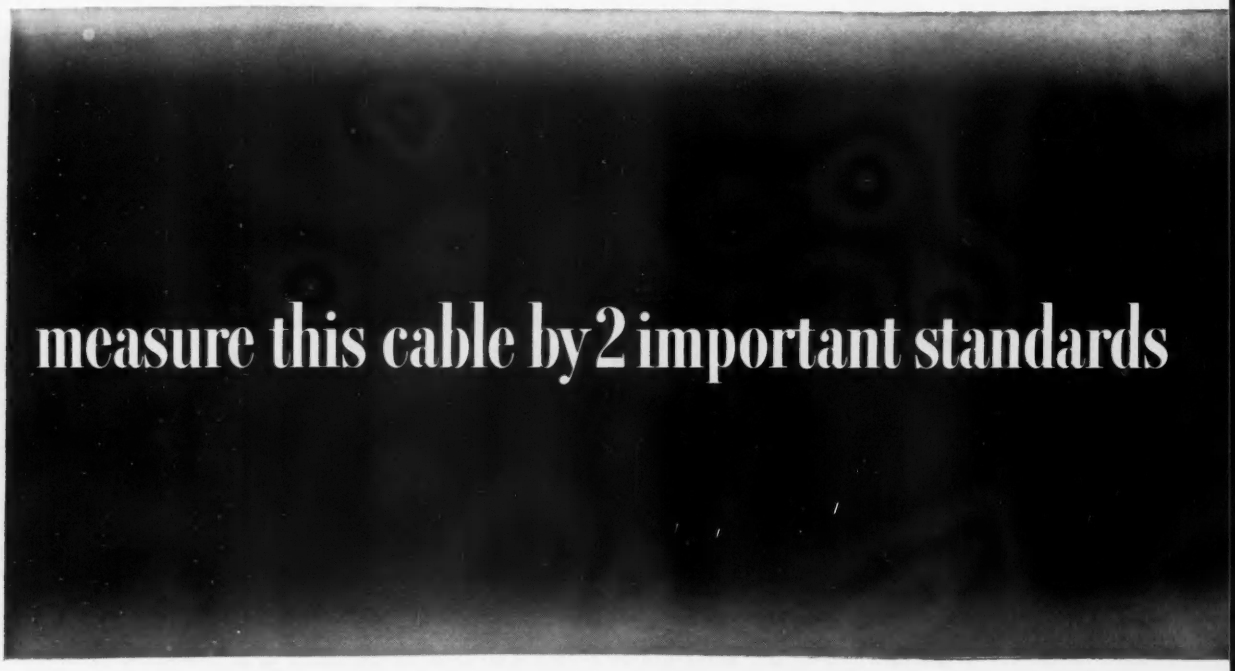

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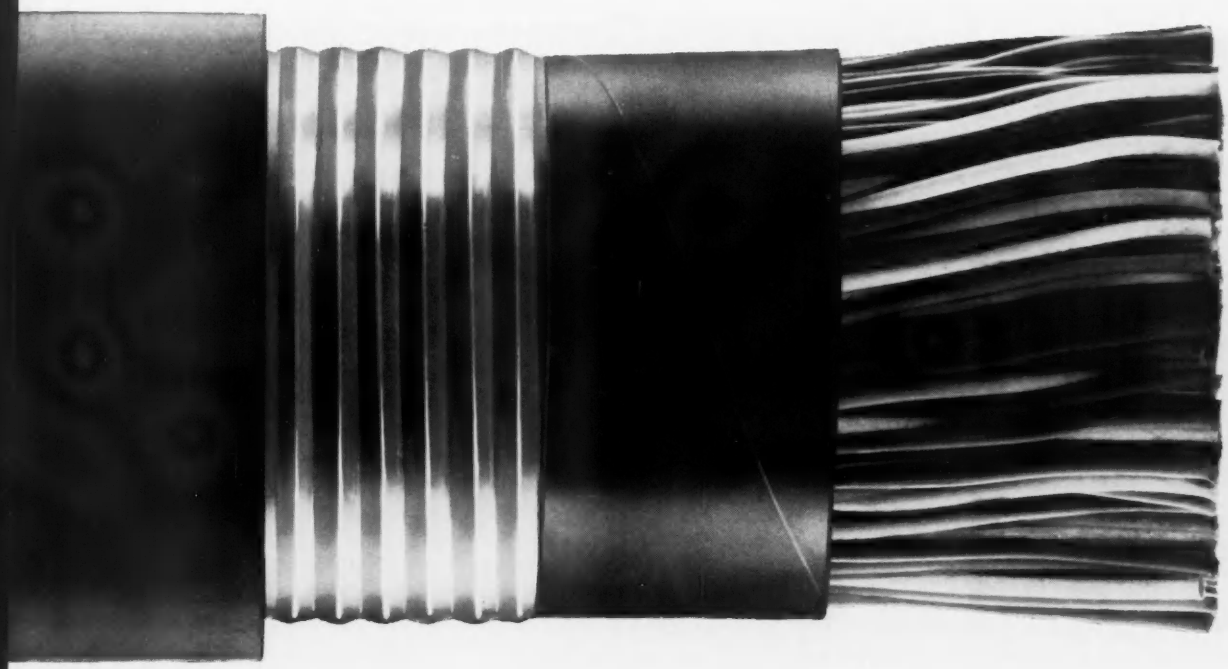

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COMMERCIAL DEPARTMENT NOTES

By ALLAN R. STACEY

Vice Pres., Sunland-Tujunga Tel. Co., Sunland, Calif.

Treatment Of Delinquent Accounts

"ESTABLISH A ROUTINE AND FOLLOW IT"

It is possible to keep your uncollectible ratio down to a respectable .35, or whatever goal you select — if you also choose to increase your wage costs and stationery expense. Or, it is possible to save money by keeping collection costs low and taking higher uncollectible write-offs.

VOTED No. 2 on our reader preference list was the subject, "The Treatment of Delinquent Accounts." On this topic alone it is possible to write a book as long as Mein Kampf. However, let's see if we can hit the highlights in two short articles, this issue and Aug. 1, and give you a few ideas for consideration in treating your delinquent accounts.

The Problem and The Philosophy

DURING the latter part of 1959 and up until now, many of our telephone companies were plagued with the problem of slow collection of accounts. Times have been tougher and many of our subscribers have been unable to pay as regularly as they used to. Our challenge then, is to collect our money as rapidly as possible without disconnecting the subscriber so that he no longer is a revenue producer for us.

A word about delinquent treatment philosophy — should we aim for a high uncollectible ratio and a low treatment cost, or a low uncollectible ratio and a high treatment cost? Here is our dilemma.

It is possible to keep our uncollectible ratio down to a respectable .35 or whatever goal you select if you also choose to increase your wage costs and stationery expenses. On the other hand, you sometimes really save money by keeping your treatment costs low and taking proportionately higher uncollectible write-offs.

Several Methods

METHODS of treatment for delinquent accounts are legion in number. Some of our companies send a first reminder notice, a second reminder notice, a temporary disconnect notice, a final disconnect notice and then cut off the service. Other companies send two reminder notices and then make a telephone call. Still other companies send only two notices and follow with a disconnection.

In my opinion the first step is to grade your accounts, then to determine the number of treatments you wish to give and finally to follow through with a routine that keeps to a minimum the number of accounts requiring special handling.

Using The Application

THE first step is to acquire at the time that the telephone service is applied for, all credit information you may later wish you had. Adequate information taken at this point will help you to trace down the subscriber if he becomes an uncollectible at a later date.

When taking the service application, at least the following information should be obtained:

(1) Name of applicant's bank.

(2) Name of applicant's trade or occupation or trade or occupation of spouse if applicant is not employed.

(3) Name and address of one business credit reference.

(4) Name and address of one close relative.

(5) Name and address of wage earner's employer.

These data are very helpful for establishing the customer's credit rating and can be useful ultimately, in case of uncollectible accounts, to trace address and employment. On the basis of this information, the service representative must make a decision as to whether advance collection shall be made of the first month's exchange rental and installation charges. Some companies do permit installation of service without collection of these charges in advance, especially when accepting applications over the telephone.

Assigning A Classification

UPON analysis of the credit information obtained by the service representative initially or through subsequent verification from another credit source, such as the telephone company previously giving service, we next establish a credit rating for the applicant and assign him a symbol. Symbols in use vary from company to company but usually they fall into categories like these:

Symbol	Credit Rating
A	No delinquent contacts necessary
B	Occasional delinquencies (1-3 contacts in six months)
C	Reliable pay but slow (4-6 contacts in six months)
P	Poor pay requiring disconnect treatments
S	Satisfactory pay but requiring special arrangements

Often it will not be possible for the service rep to immediately assign a credit rating on the basis of the information obtained from the application. Accordingly, the common practice is to place the applicant in the equivalent of the "C" rating until experience indicates a change is appropriate.

Now that we have determined a rating system let us set up a treatment practice.

The Number Of Treatments Or Contacts

FOR our particular company and its serving area, we must decide how many treatments and what type of treatment we shall give to each category of subscriber A thru S. I think most of us readily dispose of the "S" category by assigning to it such accounts as large businesses and governments, federal and municipal, which are notoriously slow in paying but are usually sound credit risks. To my interest I have often found other telephone companies in this category when we receive payments from other telephone companies.

For Category "A" customers we may decide that we shall send no notifications until 60 days have elapsed from date of billing. For Category "B" customers we may decide to send a notification after 45 days.

For Category "C" customers we may use one or two notices and a telephone call within 45 days. For Category "P" customers we may use two notices and a telephone call, all within 25 days. There is much to consider in developing the number and type of treatment, and, again, your system should be tailor made to suit your company.

Nearly all companies put language on their bill which indicates that it should be paid within a certain number of days, such as 15 days, or the service is subject to disconnection; this constitutes a first notice. Further, nearly all companies follow this up with additional notice before disconnection. Here is where we get into the variation because we have differing ideas of how many notices.

Referring, for the moment, to Class "P" customers who are poor pay and require disconnect treatment in the example above we have 25 days in which to complete our procedure. One way to accomplish this is to send a reminder notice 15 days after the bill has been mailed, to send a notice of prospective disconnection 20 days after the mailing of the bill and to disconnect the service on the 25th day. Other companies place a telephone call before making the disconnection and let the time run to 30 days.

You will have to decide for yourself what time intervals are best for your types of customers since this varies across the parts of our country and is different in rural communities than in urban. One rule of thumb that has begun to sink home in my experience is that the Category "P" customer will usually take as long a time as you will give him. He stretches it out to the limit. Maybe we shouldn't waste too much time and effort on him.

Some companies determine a dollar amount of balance due below which they will not treat accounts in any manner. For example, this might be the exchange billing for your highest grade of residential service. Assuming that your one-party residence rate was $5.50 per month you would not send notices or treat an account which showed a balance of $6.05 or less ($5.50 + tax).

Sticking To The Treatment Practice

IT APPEARS to me to be quite important to follow the routine once you have established it. That is, mail the notices regularly and on time and make any telephone calls which are part of your practice on a regular routine basis. Finally, and very important, live up to what you have told the subscriber you will do. For example, if you have sent him a notice saying that if you have not received payment by 5:00 p.m. of June 29, 1961 you will disconnect the service, then by all means disconnect the service rather than letting the thing run on for another 30 days before you take action.

I see we are running out of space. We'll continue in the Aug. 1 issue by choosing between temporary or permanent disconnection. See you then. — *Allan R. Stacey.*

TODAY'S OPERATOR

TODAY'S telephone operator is a specialist in her field. Each call she handles requires good judgment, reasoning and tact. She must have patience, a concern for others and the skill to help them.

The telephone operator is an important representative of the telephone business who makes friends for the company every day. She has the ability to handle unusual or emergency calls. She gives assistance on special types of requests such as person-to-person calls, credit card calls and overseas calls. She finds telephone numbers for names that are spelled or listed in an unusual way, or locates a new phone number that isn't in a directory yet. She can save a life, protect property, by answering a call for help.

Despite the fact that more and more people can dial directly to more and more telephones across the country, the skilled, understanding telephone operator is more important than ever. — *The New Jersey Bell Magazine.*

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12 Channels	225 Watts	240 Watts	12 Channels	250 Watts	350 Watts	120	8 Ft.	2	4.84 Sq. Ft.	3	7.26 Sq. Ft.
60 Channels	310 Watts	385 Watts	60 Channels	500 Watts	800 Watts	240	8 Ft.	3	7.26 Sq. Ft.	5	12.10 Sq. Ft.
240 Channels	560 Watts	930 Watts	240 Channels	850 Watts	1410 Watts	600	8 Ft.	6	14.52 Sq. Ft.	11	26.62 Sq. Ft.
600 Channels	945 Watts	2915 Watts	600 Channels	1800 Watts	3530 Watts						

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TRAFFIC LIGHTS

By D. A. PERIGO
General Traffic Supt., West Coast Tel. Co., Everett, Wash.

Reasons For What We Do

TIME TO DO SOME EVALUATING

Most any department can come up with many examples of things which are being done because they always have been. In many cases such situations exist because of blind acceptance — failure to challenge.

THERE should be reasons for doing things the way we do. Conversely, there must be reasons for not doing some things. If such reasons don't exist — in either direction — it is time to do some evaluating.

Here is a conversation that once took place between a Traffic Superintendent and a Chief Operator.

Traffic Supt.: "*Why* do you do that this way?"

Chief Operator: "We've *always* done in that way."

Traffic Supt.: "*Why have you* always done it that way?"

Chief Operator: "That's the way the *practice* says to do it."

Traffic Supt.: "*Why* do you think the practice says to do it that way?"

Chief Operator: "Because that's the way the *General Office wants it.*"

Obviously no Traffic Superintendent should try this unless he has a very low *boiling point* and is in the best of physical and mental health, because by the time you get the third answer you feel like biting a Chicago directory in half.

Any one of these answers is bad enough, but all three!! Oh my!

Under any circumstances these answers indicate two things: First, there has been blind acceptance and second, probably there had been no explanation by someone who is supposed to know. Either condition requires treatment.

Teaching people to be challenging can be a little hazardous too. Someone who has been a "blind acceptor" may go too far in the opposite direction. When this happens you have on your hands an employe who is an obstructionist. Either way you have a problem, but fortunately the law of averages works in your favor for the obtaining of some balance.

This is a Traffic column so we naturally used Traffic titles for relating the conversation at the start of this article. The characters could just as well be Plant Superintendent and Wire Chief or Commercial Superintendent and Manager. The Traffic Department does not have a corner on blind acceptance — nor does the telephone company. We don't doubt but that many a so-called manager is glad to have people who blindly accept orders. This is often a managerial weakness.

A Constant Challenge

OUR business today must be conducted with a constant challenge but without obstruction. Perhaps something started in 1941 was entirely reasonable — and in the light of 1951 it was still meeting the test — but how does it stack up in 1961?

As a Traffic illustration let's look at a very simple one. Keyshelf bulletins make it possible for operators to have information at their finger tips instead of reaching another operator. In 1941 it was necessary to show the toll center for each office on these bulletins. It was still a good idea in 1951, but is it in 1961? Those who can remember back to 1941 should stop and think how often they then required the toll center information. With present day practices and methods of operation, how often do you require the toll center? Is there some other information that would be more valuable?

Any department can come up with many examples of things which are being done because they "always have been." This situation exists because of blind acceptance — failure to challenge!

We also said there has been failure to properly instruct, failure to give reasons. How often has a supervisor replied to "Why?" with the answer "Because I said so?"

We talk and talk — and talk about

training so that I sometimes wonder if we don't spend so much time talking about it that we have no time left to do a proper job of training. Just what is training anyway? It is teaching someone to do something — so let's look at the method of doing it.

Here is a young lady just out of high school who has never been in a central office before. Too often we assume too much. For example, here are two ways of training on answering signals:

(1) When a signal comes in you plug in with a back cord and say "May I help you?"

(2) Whenever one of those little lights comes on it means that one of our customers has dialed "O" because he needs some help. We don't know ahead of time whether he wants to place a long distance call, has had trouble on another call, needs to know whether a number he has been calling is really busy, wants the fire department, an ambulance, or any number of other things — but we do know he needs help so we say "May we help you?" when we answer the signal. Now, this is what we do so we can answer. We take one of these back cords, like this, and etc. . . .

I know some of you will say "Oh, but when a student does know how signals come in and why, this kind of explanation would insult her." You are right, of course, and this is the very reason we try to build on what the student already *knows*. The point here is that we make sure she really knows the facts rather than having accepted misinformation from someone else.

Now let's look at the other side. Did you ever wonder what a customer thinks when he asks for something special and we tell him it can't be done. The customer innocently asks "Why?" — and the answer he gets is "Our *practices* don't provide for that!!!" BOOM! and the customer's blood pressure goes up and up.

Sure, we have been talking about a lot of people — and some of them answer as they do, not because they want to, but because there is no other answer. Why does this condition exist?

We have a young fellow who sees the customer's viewpoint and the way to solve it. He talks to his boss, an older man, who says his *experience* tells him not to do this. "Experience," the way the world is moving today, can stand in the way of progress and understanding. Some of us drove a horse and buggy, then graduated to an automobile. What good was the horse and buggy experience in driving a car? A few have gone on to piloting planes — but where did our first astronaut get his "experience."

Experience has value only when it is translated into the present. A traffic engineer was curious as to why his traffic superintendent seldom rewrote his letters or corrected him. After all, the traffic superintendent had many years of experience. The boss then said "My *experience* in traffic engineering was prior to 1935. Do you think I should apply that to present day problems other than in basic theory? You see I depend on you for today's problems and even though I am the boss one of the reasons is because you present the ideas while I do the challenging. Sometimes when I challenge you find a reason for another approach — and deep inside you know I'm trusting you."

Ask that traffic engineer why he does something a particular way and I'll bet he doesn't say "Because we've always done it that way." — *D. A. Perigo.*

"One of the first things to remember about climbing is — keep 'yerself' in good shape."

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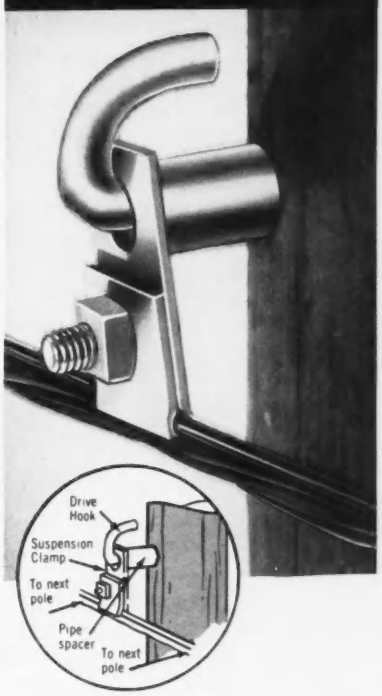

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SUB-HARMONICS and OVERTONES

By C. D. EHINGER

Pres., Citizens Telephone Co., Decatur, Ind.

Characteristics Of Transmission Lines

186,000 MILES PER SECOND

Jim Desmond talks to the "Kid" and briefly touches upon velocity of propagation which leads the "Kid" to ask some questions about the characteristics of transmission lines and set the scene for a discussion of the characteristic impedance of transmission lines.

SPRING had come to Centerville. Jim Desmond, inside plant superintendent of the various exchanges which comprised the Centerville group, always dreaded the advent of the season as it affected his particular job. For 30 years, he had fought against the multitude of problems which always are caused by dust and dirt in equipment rooms and had still found no solution.

Chet Hearne, Bill Shipley, the Kid, and the rest of the equipment room personnel had come to expect Jim's annual lecture concerning the importance of *clean shoes* before entering any equipment room. In spite of all of these lectures and precautions, Jim knew that the battle against dust would be a losing one and that he could expect a few more cases of contact trouble than at any other time of the year.

The Kid completed his self-appointed task of putting away his treasured hand tools in his locker and casually sauntered past Jim Desmond's office. Jim had chosen to leave his door open and the Kid nonchalantly pushed a shoulder against the doorframe.

"Hi Jim. I've managed to get through the routine on the third selectors a little earlier than usual."

"Congratulations, Kid! Find much of anything?"

"Not much, Jim — about normal. I found only one switch that was a little sloppy, but it didn't take long to bring it back into line."

"That's fine, Kid." Jim shuffled his papers. "What are you assigned for tomorrow?"

Pulse-Checking Takes Longer

THE KID sighed. "Chet and I are scheduled to start checking out pulsing on the Aurora-Centerville trunks completely through the equipment at both ends and I am surely dreading it because it seems to be taking longer and longer to get things lined up on any set of toll transmission circuits."

Jim made a wry face — "Well, Kid, what you say may be true but it's probably a good thing that the Aurora circuits are the ones scheduled for checking at this time. I have just been noticing that, in the last few days, we have had more 'first attempt failures' on that group of circuits than on any other group. I can tell you this much — as we have gone into more Operator Toll Dialing and more Direct Distance Dialing, our requirements and tolerances have become far more critical then ever before."

Jim thought briefly. "Of course, Kid, it is easy to see why our tolerances are so much more critical — if some subscriber is Direct Distance Dialing to San Francisco, from Centerville, he may actually have been lashed up in a chain of five or six circuits. Just take the matter of 'percent make' or the 'percent break,' if you prefer. If each link in the chain is a few percentage points off, the effect can be cumulative and by the time our pulse reaches San Francisco, it may not even remotely resemble what started out from Centerville. So I guess it means that we must do our darndest to keep all of our equipment and circuits on the button and hope that every other telephone company does the same thing so that our subscribers will get the maximum efficiency when it comes to their telephone service."

We Need Closer Co-ordination

JIM became somewhat reflective. — "It seems to me that with each day

that goes by, it becomes more and more necessary for every telephone company to work more closely with every other company. This is far more true than it was in the old days.

"Today, if Podunk Hollow does something, or fails to do something, which causes a Centerville subscriber to reach a wrong number in Podunk Hollow, the Centerville subscriber blames us people here at Centerville because they have not heard the progress of the toll call as they used to do in the old days when they heard operators progressing the call along the line.

"Today, all they know is that they either get the party at the other end or they don't get them — and they can either talk to them easily or they can't. Naturally, when things don't go right, they blame us, here at Centerville, even though our skirts may be perfectly clean and the fault lies with the equipment at the far end or at some intermediate point.

"I tell you, Kid, that there has never been a time when we need so much cooperation and dedication as we do today with the coming of Direct Distance Dialing and all of the other services which are based completely on the concept of one giant computer machine serving the whole nation and, ultimately, the entire world. For that matter, it won't be long before it will probably also envision serving other planets as well as Earth."

The Kid interrupted — "Yeah, how about all this jazz going on now with orbital flights and moon rockets, trips to Mars and other planets? Maybe in my lifetime I will be picking up the telephone and jabbering to some guy sitting on a hunk of rock in some other universe."

Never Say "Never"!

JIM laughed. "You're way off there, Kid! 'Never' is a word that is becoming increasingly unsafe to use, but I think I am safe in saying that it will never be quite the way you are visualizing it. You are forgetting one basic law of Nature, and that is a little item called 'the velocity of propagation'."

The Kid grinned somewhat rue-

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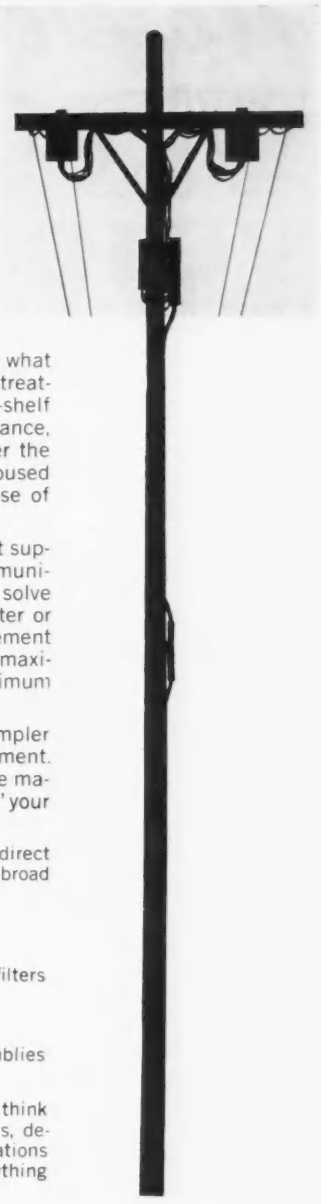

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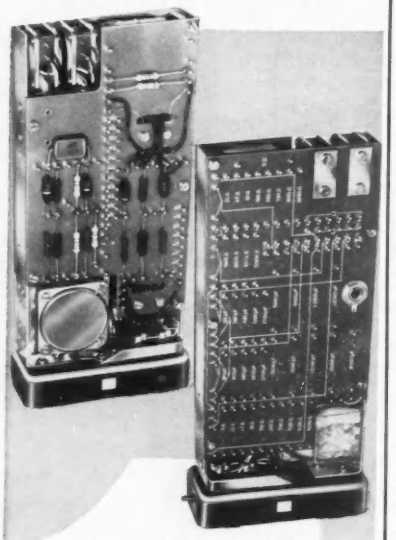

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fully. "I have a faint idea of what you're talking about, Jim, but go ahead with what you had in mind."

"Well, Kid, all I was thinking was that you're going to have to pick out some planets that are mighty close to this hunk of Earth. I don't know the first thing about Astronomy, but let's just say, for example, that there *is* a habitable planet that is only fifty light years away from the Earth. Let's call it 'Planet X.' So, today, you pick up the telephone and place a call to Planet X and start talking and ask Joe Blow, on Planet X, a few questions. After you have finished asking the questions, you wait for an answer from Joe Blow. Your message will travel out toward Planet X at the velocity of light, which is approximately 186,000 miles per second. But, as I figure it, it will be the year 2011 before Joe Blow hears your message and the questions which you have asked. Now, again, if my calculations are correct, Joe Blow can send off his answer to you on the very day that he hears your questions and it will be the year 2061 before his answer travels back to earth as a reply to your questions."

Jim grinned. "It looks to me like it's going to have to be some of your great-great-great-grandchildren who will get the answer to any questions you ask Joe Blow on Planet X today."

The Kid answered — "I hadn't thought of it that way, Jim, but you're sure right. I wonder how many generations it would take to play a chess game by telephone with an opponent on a planet fifty light years away? With the lousy chess game I play, it wouldn't take many generations for me, I guess. Well, anyway, I suppose there're some more practical things for us to think about that will come along while I'm still in this business. At least, I'll probably see the day when a lot of our toll calls are actually hitting some satellite repeaters that are orbiting around the earth."

Practical Use For Satellites

JIM sighed — "No question about that, Kid. With all these new developments, we'll probably see some practical usage of satellites in a very few years. But even there, the velocity of propagation of radio waves must be taken into account. Just for the sake of illustration, let me assume that a call is to progress over two satellites which are 4,650 miles above the Earth's surface. In such a case, a call would hit the first satellite, come back to a repeater station on Earth, up to the second satellite, and back to the terminating point. This would mean that the total distance traveled was approximately 18,600 miles in length.

"Assuming no delay time in the various repeaters themselves, the total time required for the transmission would be approximately one-tenth of a second if the velocity of propagation was 186,000 miles per second. Now one-tenth of a second doesn't sound like a very long time, but it is, of course, one hundred milliseconds and a great deal of field experiments have proven that such a delay in a telephone conversation is extremely annoying and irritating to the average individual.

"So, all that I'm trying to tell you, Kid, is that the boys figuring out this satellite program have a few practical considerations as well as the more glamorous ones, which must be taken into account. It's no small job and it is going to be extremely interesting to watch the progress of these various satellite repeater programs."

What About Telephone Transmission Lines?

THE Kid spoke up — "While you're on that, Jim, I never did know too much about this propagation business and a few fundamentals about transmission lines and all that jazz. Do we have the same propagation in our telephone circuits as you were talking about — 186,000 miles per second?"

"No, we don't Kid," Jim replied. "Let's get into that right now, and also talk about the characteristic impedance of lines."

In the next "Kid" article, Jim goes into some of the fundamental characteristics of transmission lines and explains them to the Kid.

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PLANT ENGINEERING NOTES

By JOHN S. REED
Technical Editor, TELEPHONE ENGINEER & MANAGEMENT

New Method Produces Improved Cables

NEW IDEAS AT WORK

Careful manufacturing processes and the use of an ingenious machine with oscillating face plates for stranding the cable pairs into units are producing cables with excellent transmission characteristics including greater freedom from crosstalk.

Oscillating Lay Plates Produce Improved Cables

CROSSTALK is a common phenomenon that occurs when two or more telephone circuits parallel one another for some distance without proper means of cancelling the transfer of voice current energy from one circuit to another as the result of capacitive and inductive coupling. When the circuits are close together as in a cable, the capacitive coupling predominates. This coupling is neutralized by transposing the conductors of each circuit in such a manner that the induced current in one portion of the circuit is equal and opposite in sign to the current induced in the next portion. The more transpositions or twists there are, the less is the coupling effect between the circuits.

For a number of circuits or pairs bunched in a cable, it had been necessary to vary the twist or lay length in each pair so that no two equal lengths would be adjacent to each other and thus produce crosstalk. In addition, each unit or pair group of this cable had to be composed of pairs with different lay lengths in each unit, making the lay formations a complicated process.

Through careful manufacturing procedures and the use of an ingenious machine with oscillating face plates for stranding the cable pairs into units, the General Cable Corporation is producing cables with excellent transmission characteristics including higher freedom from crosstalk interference. This machine was developed by Western Electric engineers and the General Cable Corporation is licensed to use the oscillating equipment.

The first step in the manufacturing process is to produce the required number of twisted pairs for the units, each pair being assembled under strict control to obtain a lay length different from that of all others intended for inclusion in the same unit. The second step is to draw the pairs through the holes in the oscillating face plates of the machine and oscillate strand them into units.

The effect of the oscillating process is to continuously move the twisted pairs in one group in relation to those of adjacent groups so that no two pairs with equal lay come adjacent to each other. The net result of the oscillating process, coupled with the strict control of the lay lengths in each unit, is to produce less crosstalk interference not only between pairs within a unit, but between the units themselves.

Other meticulous manufacturing techniques, further contributing to this new improved plastic sheathed, plastic insulated telephone cable are the following:

Unit Binders: In the past the units of plastic telephone cables have been bound with fibrous binders of one type or another to provide for unit identification. Fibrous binders are not completely satisfactory due to their relatively pale coloring and tendency to fray. The use of colored linear polyethylene tapes for this application provides non-fraying binders with vivid, readily-identifiable unit color coding.

Sheath Uniformity Gauge: Thickness uniformity and concentricity of extruded plastic sheaths is a guarantee of sheath integrity which is essential to high quality cable. As the sheath is applied to the cable, the

thickness and concentricity of the sheath is measured by a sheath concentricity gauge, which consists of a probe which moves in a helix about the outer surface of the completed cable as it leaves the extruder, an ultra sensitive bridge calibrated to register sheath thickness in increments of 1/1000 of an inch, and a chart recording instrument, which provides a record of sheath thickness and concentricity. This device not only gives graphic evidence of sheath thickness and concentricity throughout the length of the cable, but most important, gives the operator information as the sheath is being applied, so that any necessary corrective measures can be taken to maintain uniformity.

Transmission Performance: Control of all variations in materials and manufacturing techniques has been further perfected and refined to guarantee low resistance unbalance, low capacitance unbalance and low mutual capacitance deviation. These add up to uniform, predictable and better transmission characteristics.

High Voltage Testing: Voltages in excess of industry standards for plastic insulated telephone cables are employed in testing the cables. Testing out at elevated voltages is made possible by rigid control of conductor insulation. Such testing is stated to be a guarantee of long, trouble-free service.

The new plastic telephone cable recently introduced by General Cable Corporation is the result of the improved methods, techniques and materials. The manufacturer states that the name "Qualpeth" reflects this new quality improvement over the former aluminum shield polyethylene insulated and jacketed type telephone cables.

Experimental Circuits Stop Electrolysis Switch Damage

AN ARTICLE by L. L. Swan, Illinois Bell Telephone Company, which appeared in the October, 1960 issue of *Corrosion* magazine tells how damage to electrolysis switches was prevented by the application of germanium diodes to protect meters and electrolysis to any switches.

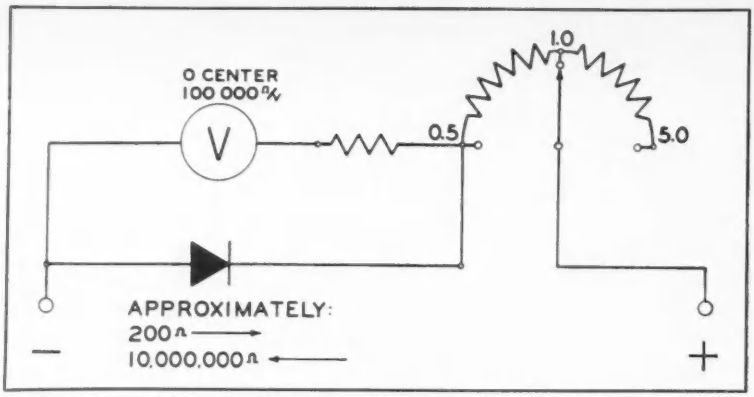

FIG. ONE: — Meter protection circuit. Germanium diode was connected across the coil and the series resistance to protect the meter's one-volt and higher scales. When current surge was reversed, the diode conducted and its resistance became about 200 ohms, limiting the current through the element to a safe value. (Courtesy of Corrosion Magazine.)

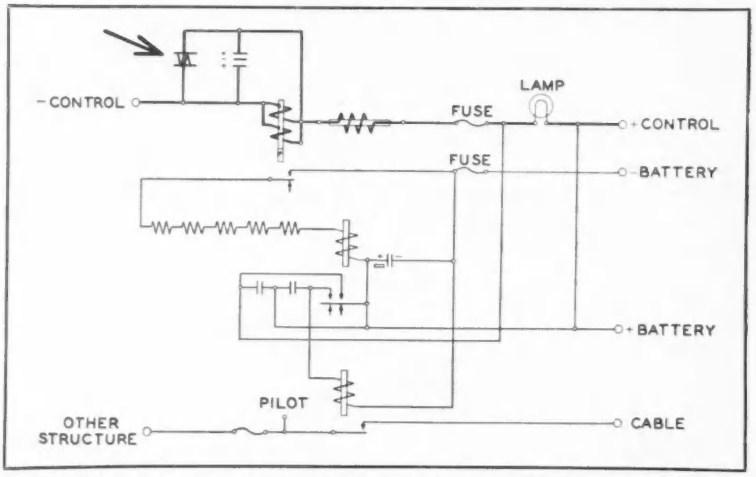

FIG. TWO: — Surge protection for polar relay magnets. Arrow indicates the protective diode wired in parallel to protect the relay magnets. Two diodes were used, one for each polarity.

According to this article, electronic components in corrosion control equipment have been damaged by high voltage currents resulting from normal switching on a power system. This article went on to describe a case history in which electrolysis switches were being destroyed by transient currents.

Electrolysis switches are used by Illinois Bell Telephone to drain stray currents from its telephone cables back to the negative bus of traction power systems when the substations are operating. The switches open this circuit to prevent current from flowing back to the telephone cables when the substation is shut down.

These switches are also used to drain current from the cable to the traction rail at points on the cable being attacked by stray currents. At an installation such as this, a meter being used for test readings was seriously damaged by a high voltage negative current when the subway power was suddenly interrupted.

To solve this problem, a germanium diode was connected across the coil and the series resistance for the half volt scale on the meter as shown in *Figure One*. With the diode in the circuit, the meter element was protected on the one volt or higher scales. Readings were made of low positive potential with little error because the diode had a resistance of about 10 megohms. When a current reversal occurred, the diode conducted and its resistance became about 200 ohms. This limited the current through the element to a safe value.

The deflection seldom was more than half scale before the current surge was dissipated.

Successful protection of the meter circuit suggested the idea that high negative current surges might effect the magnets used for biasing the polar relays in the electrolysis drainage switches. In some locations, these relays had required frequent adjustment and sometimes replacement in less than a year of service.

To check this effect, experiments were set up, using a surge of 150 volts across the relay control circuit of a drainage switch. Current over three amperes flowed momentarily in the polar relay winding which resulted in changing the operate and release currents even in the new alnico type relay.

For greater protection than that obtained with germanium diodes, experiments were made using copper oxide rectifiers. Such a rectifier with a voltage drop of 0.8 volts at three amperes was connected in parallel with the relay. Current in the relay winding was limited to 30 milliamperes. This value (called the reverse "soak" current) is used in adjusting these polar relays before putting them in service. The circuit is shown in *Figure Three*. The arrow indicates the protective diode. Two diodes were used, one for each polarity. Because the rectifier units do not conduct until the current required to operate the relay is exceeded, the rectifiers do not interfere with operation of the drainage switches.

This electrolysis switch with the experimental protective circuits was adjusted in the shop, the polar relay sealed and the unit installed on the telephone cable. It operated for 18 months until a power failure occurred near its location.

The badly damaged switch was returned to the shop for inspection and repair. Some of the wiring had vaporized, fuses were blown, and the contactor had welded and one of the rectifier units had short circuited, but the polar relay operated at the same currents for which it had been adjusted 18 months before. This was unbelievable performance.

— *John S. Reed.*

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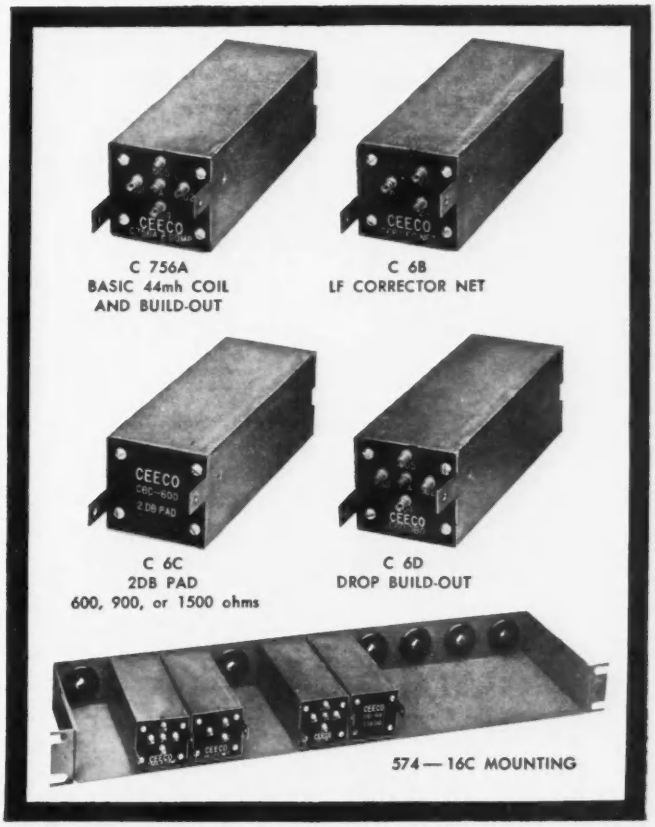

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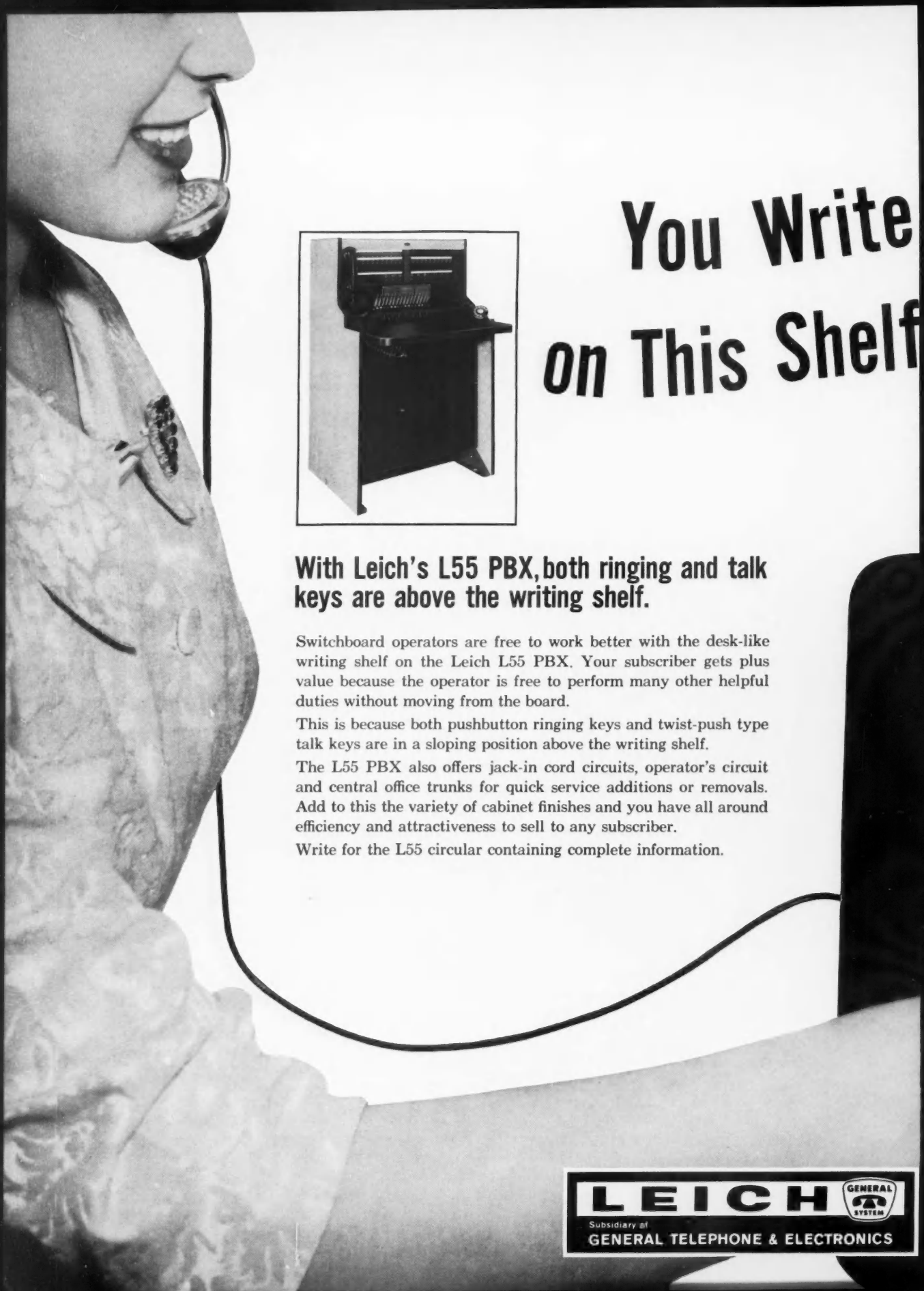

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"Telephone Protection Practices"

(Continued from page 29)

You Will Come Out Ahead

THIS DOES not mean, of course, that all reference material singled out for your attention in this article can be secured free of charge. In any event, regardless of whether you are eligible for the discount price extended to members or are expected to pay the nonmember price (in case there is a difference), the advantages you stand to gain from *confidently knowing what the score really is in safety and protection work*, will outweigh the relatively insignificant cost of acquiring the requisite information.

In plain words, you can't lose if you follow the exemplary, sequential steps summarized in this discussion and detailed in the appended references.

Getting back to typical publications about the associations themselves, what would a telephone worker learn of interest and value to him in response to his request for a statement of the aims and main functions of the American Standards Association (ASA) — the national clearinghouse and co-ordinating agency for voluntary standards in the United States?

Among other informative, useful things, you would learn that the ASA, founded in 1918, is a federation of 122 trade associations and professional societies. It has more than 2,000 company members. The member bodies of ASA include a telephone group made up of the United States Independent Telephone Association and the Bell Telephone Laboratories, Inc.

In addition you would be fortified with the knowledge that ASA is a nonprofit organization and follows working principles founded upon the ideals of our own democratic traditions, by providing representation of all parties at interest in all of ASA's standards activities so that a consensus may be achieved for every standard bearing the name "American Standard."

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Benefits Available To All

OF GREAT practical concern right now to readers of this article, you would discover that the facilities and publications of the ASA *are available to all comers — members and nonmembers alike.*

The 72-page booklet, "American Standards Price List and Index," is an impressive showcase of what comes off the production line of the procedural machinery of ASA. Certain standards listed in this index are among those of basic concern to the telephone industry and, therefore, will be discussed hereinafter.

Let's take a quick look at another example of great interest to telephone companies in their continuing efforts to increase safety consciousness among *all* telephone employes. As previously indicated, once a year the National Safety Council prepares a comprehensive, illustrated catalog showing a great variety of safety publications and materials useful in stimulating interest and action in safety practices.

Much of this safety material has been developed especially for use in the public utility industry. The NSC has considerately gathered these specific utility safety items and related materials into one 13-page descriptive folder entitled: "Specific Safety Materials for your Industry — List of NSC Publications for the Public Utility Section." A review of the items in this folder will be of substantial assistance to telephone companies that desire to easily select and order effective safety information for use in their safety programs or for an answer to a particular safety problem.

In passing, it is worth noting that it is a rare occasion when a new problem is encountered in safety. Usually, someone else has had the same problem and may have found the answer.

Where can you find safety information covering practically all of the general problems encountered in various industries? You should start out by first referring to the 4th edition of the National Safety Council's excellent "Accident Prevention Manual." This Manual's 45 chapters — over 1,500 pages — contain specific answers to many of your company's safety problems. In addition, at the end of each installment of this article, including this one, you will find numerous entries in the list of "Selected Reading References," that are good sources of still more safety advice and guidance.

Getting The Most Out Of Codes and Standards

WHEN preparing yourself to reap the most benefit in the shortest possible time out of the information contained in codes and standards, there is another consideration that is entitled to your earnest attention. This is the necessity of actually knowing the latest meaning and shades of meaning of the words and terms peculiar to and commonly used these days in the telephone industry and its publications — including Telephone Engineer & Management.

This matter is of such bedrock importance that one of the oldest and most universally adopted national electrical codes (that will be discussed hereinafter) devotes a large part of its first chapter to definitions. This code further recommends that for electrical terms not defined in that chapter, to refer to the "American Standard Definitions of Electrical Terms, ASA C-42," one section of which, dated January, 1957, covers communication terminology. These 5,300 useful definitions, nearly 2,000 of which are communication definitions, may be secured from either the ASA or the AIEE.

Familiarity with the meaning of specialized and technical words is of great practical importance because the intelligent comprehension and

application of codes and standards depends upon an accurate understanding and interpretation of these words. To this end, "discussions" in handbook form are available that materially assist in clarifying the exact meaning and scope of some of the major electrical codes and electrical safety codes. A synopsis of each of two of the best known and most used discussion-type handbooks is included in that section of this article where the codes themselves are discussed.

The necessity of truly understanding an industry's terminology was emphasized by a noted lawyer a few years ago when he stated:

"I consider that a standard is simply a definition of a product or procedure in terms of certain features. Standardization, accordingly is simply the process of reaching agreement on the form and content of such a definition.

"The most basic of standards are those dealing with terminology, nomenclature, symbols, and methods of measurement. By providing a common language, they prevent misunderstanding and lay the ground work for further progress in standardization.

"Safety standards are a special kind of quality standards. . . . Like other standards of quality, safety standards define a minimum—in this case, the minimum necessary to secure reasonable safety. There may be some debate as to how much safety this is, but, in practice, judgment on this score will usually be confined within narrow limits."

Thus, clarifying the definition of terms encountered in the telephone industry and its associated standards will make it easier to become acquainted not only with code fundamentals or objectives of safeguarding but also with the recognized methods and detail by which the purpose and intent of the fundamentals may be satisfied.

This and other practical points of current significance will be illustrated in the next installment of this article. This will be done by means of a down-to-earth discussion of the 1959 edition of the "National Electrical

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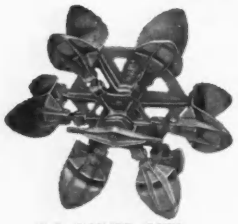

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Code," and the latest edition of the "National Electrical Safety Code," — two publictaions that concern every telephone company. *(To be continued.)*

Selected Reading References**

[11] "How to Start a Safety Program." This 48-page booklet defines the organization of a simple and economical safety program—not the engineering details, but suggestions on what to do about problems of health, personal injury, etc. Applicable to any size operation. Published by the National Safety Council, 425 North Michigan Avenue, Chicago 11, Ill.. Price $1.00.

[12] "Industrial Accident Prevention." This standard text-book of 480 pages, written by H. W. Heinrich, Travelers Insurance Company, explains the principles, facts, and methodology of accident prevention.

Last edition published in 1959 by McGraw-Hill Book Company, 330 West 42nd St., New York 36, N Y. Price $9.00.

[13] "Safety Management: Accident Cost and Control," by R. H. Simonds and J. V. Grimaldi. 567 pp. This complete and valuable guide to effective safety management explains and demonstrates the basic principles which govern the control and prevention of work accidents.

Published in 1956 by Richard D. Irwin, Inc., Homewood, Ill. Price $8.70.

[14] "Supervisor's Safety Manual." This 352-page, profusely illustrated, clearly written textbook is for self training or group instruction of foremen. It is designed to teach the basic knowledge of general accident prevention and human relations techniques that can help eliminate hazards, correct unsafe work practices, and kindle safety consciousness among workers.

Published by the National Safety Council, 425 North Michigan Avenue, Chicago, Ill. Price $4.25.

***References* [1] *through* [10] *can be found at the end of previously published Part One and Part Two of this article. (See the May 1 and June 1 issues of TE&M.)*

Telephone Industry News Highlights

COAST-TO-COAST REPORTS

REA Administrator Norman M. Clapp reports on "reappraisal of the federal telephone loan program" . . . Illinois Telephone Association head stresses "Service Challenges" in convention address . . . Frederick L. Kahn named chief telephone engineer, Automatic Electric Co.

Clapp Addresses Wisconsin State Convention: Reports on "Reappraisal" of REA Loan Program

IS THERE unfair discrimination in the treatment of cooperative loan applicants as compared with commercial companies seeking telephone loans from REA?

Norman M. Clapp, the new REA administrator, assured delegates to the Wisconsin State Telephone Association convention in Milwaukee that this is one of several questions under study in a "complete reappraisal" of the federal telephone program.

Another question is "whether speculative practices of certain commercial promoters in the industry" have been allowed to subvert the real purposes of the program.

"Borrowers, just as well as we at REA, have a responsibility for the fullest improvement of this program," Clapp said, "for correcting any faults or abuses that may threaten it, and for giving Congress and the taxpayers full value in public benefits for the dollars used.

"When I speak of borrowers, I include, of course, both cooperatives and commercial companies, but it can be expected that if the job is to be done, cooperatives will have to play a larger role than heretofore in some marginal areas. They offer people who need service a means of banding together to help themselves. Their primary motivation is the need, the desire for service rather than financial profit.

REA Administrator NORMAN M. CLAPP, a native of Wisconsin, told the state's 1961 convention audience that his department wants to see area coverage telephone service provided in every rural district of Wisconsin.

"I mean no slight to telephone companies. The record of many companies in extending their lines into the surrounding countryside is excellent. REA will continue to make loans to companies where they can serve rural people as provided in the Act."

Clapp said that 21 per cent of Wisconsin's 131,215 farms still are without telephone service. In one county more than 2,000 farms have no telephone, in another more than 1,000 are without service and in 12 more counties there are 500 to 1,000 farms unserved.

"We are going to be seeking your help in taking stock of the situation in Wisconsin. We want to find out where the unserved 21 per cent live."

More than 400 persons attended the Wisconsin convention at the Plankinton House Hotel, Milwaukee.

In making his report to members, Association Secretary Ray Riordan touched on three items which could have "far reaching effect on the state's telephone industry."

A bill introduced at the request of the association — to provide a fine and a jail term for fraudulent charging of toll calls, tampering with equipment or using a scheme or code for messages — has had a hearing and is now awaiting recommendation by the Wisconsin Senate judiciary committee, Riordan reported. Similar laws have been passed in several states.

A proposal has been made that

New New — New New — New New

Write for Sample

A Revolutionary NEW

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You'll be surprised at its Light Weight

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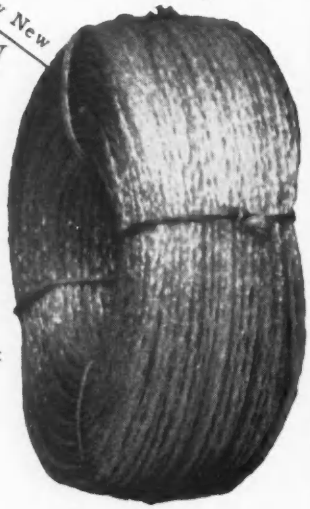

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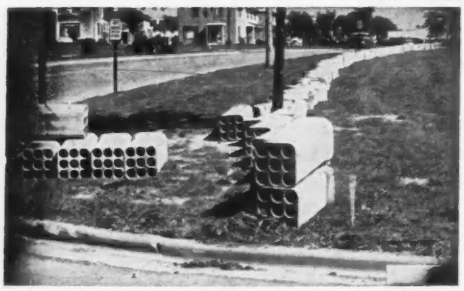
would establish county wide extended area service in Dane county, in which Madison is located. This would eliminate toll charges made from exchange to exchange in the county. If the issue is formalized in Commission hearing it will be opposed by the association, Riordan said.

Attention was also directed to a boundary hearing involving the Wisconsin company to extend facilities into an area already served by Weyauwega. An appeal to the Dane County Circuit Court brought reversal of the commission's order and the Public Service Commission has now asked an opinion from the State Supreme Court. Riordan stated that the association directors have asked legal counsel to participate in the case for the association as a "friend of the court."

Progress in the state's dial conversion program was also cited. At the end of 1960, 190 exchanges serving 166,450 telephones, or 10.7 of the state's total, remained to be converted. Four hundred and fifteen dial exchanges serve 1,386,000 telephones. 95.6 percent of the Wisconsin Telephone Company's telephones are dial while 74.6% of the Independent stations are connected to automatic exchanges, Riordan reported. Forty conversions are scheduled in 1961.

Wisconsin State Telephone Association President, L. J. ROBERTSON, Platteville, reported that the organization had enjoyed one of its most fruitful years and thanked members for the faith expressed by them in choosing him as president for the 1960-1961 term.

CONDEX* MULTIPLE CONCRETE CONDUIT



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Another convention speaker, C. C. Pearce, Riceville, Iowa, president of the United States Independent Telephone association, said the future of small, Independent telephone companies looks good.

He said that Independent companies would benefit from population shifts from urban centers and urged the Independents to provide prompt, efficient and economical service.

"Independent companies must stay more than one step ahead by expanding operations, developing new equipment, offering new services and maintaining programs to cope with the most complex problems created by society and time," he said.

John Wyngaard, veteran state capitol correspondent for the Green Bay Press Gazette and Appleton Post Crescent, sketched a picture of state government problems and what may be done about them.

He said chances that a sales tax measure would be passed in Wisconsin this year look about 50-50 to him.

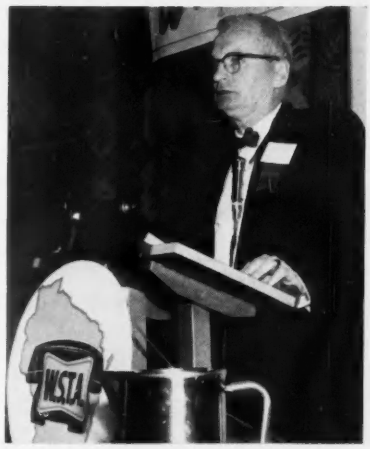
"The demands for governmental benefits are far out-running the capacity of the revenue system," he said. "It is conceivable that we could survive for another budget period by temporizing and tinkering, as so many legislatures have done for so many years over the past. . . .

"I am convinced that only through a sales tax can this state achieve the revenue levels it is going to want to have — and keep its tax system reasonably comparable to that of other states with which it is in competition for residents and taxpayers and taxpaying business."

Wyngaard said that individuals often have more influence than lobbyists in the legislative process.

"I can tell you on the basis of having watched a dozen legislatures, for example, that the individual letter, independently written, by a citizen who knows what he is talking about, is more important in making up the mind of your representative than almost anything else — except perhaps two or three good letters."

In a talk entitled "A Caveat on Depreciation Charges," A. R. Colbert gave a word of caution regarding depreciation charges on central office equipment and telephones. Depreciation of these types of plant is influenced substantially by growth of service, improvements in the art, and merchandising activities in promoting new or improved types of service.



Public Service Commission of Wisconsin Accounts and Finance Department Chief, A. R. COLBERT, Madison, advised Wisconsin telephone people to take a "long hard" look at their depreciation rates to be sure that they are realistic.

Colbert stated that the past record shows many instances where the depreciation provisions for manual central office equipment and telephones were inadequate and deferment of retirement losses on conversion to dial operation became necessary.

"This," he said, "is not the best financial practice and it would have been much better had past depreciation charges been higher."

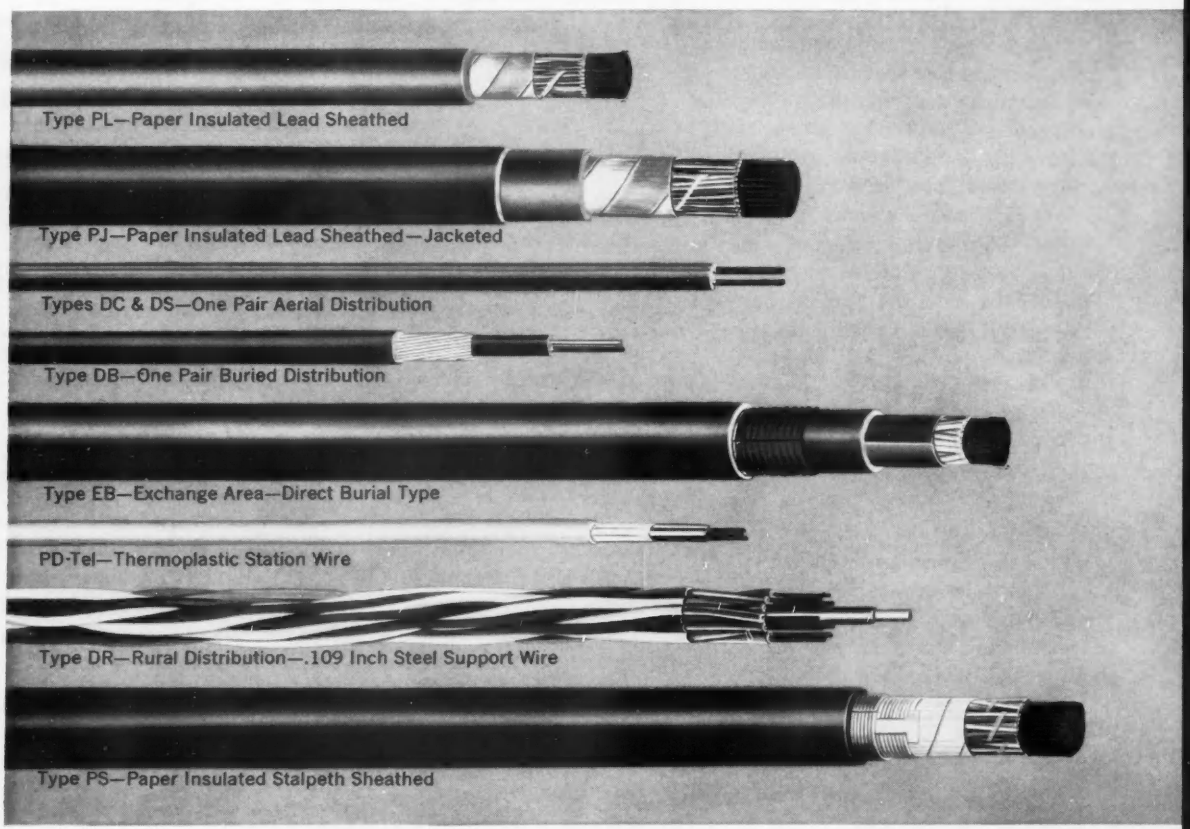
Looking to the future, Colbert said it seems that the life of the present investment in dial facilities may likewise be subject to the effects of growth and of obsolescence.

"With consideration being given to present and forecasted rates of growth of the telephone business, to experimental research and manufacturing development both by Bell and non-Bell companies and to merchandising activities in selling new or improved types of service," he said "it may well be that depreciation will occur at a faster rate than in the past."

Pointing out that it is characteristic of the life of Central Office Equipment that the first installation in an office has the longest life and that each succeeding addition thereto has a shorter life, as the office will finally be entirely retired at one time, Colbert stated that large telephone utilities with numerous offices and adequate personnel can depreciate the several vintages of investment over their respective lives; and, since the

Two exchange repairmen from the Fredericksburg, Texas, exchange of The Southwestern States Telephone Co. hold Vail Citations awarded them for "noteworthy action at the scene of a highway accident." From left in the photo are: M. E. BARNES, plant superintendent, and B. F. VANN, director of personnel, both of the general office of Southwestern States in Brownwood, Texas; RALPH WEIERSHAUSEN and TOM BELCIK, exchange repairmen at Fredericksburg, and A. J. LACY, West Texas Division manager for the company in Brownwood. Weiershausen and Belcik were first to arrive on the scene of an automobile accident. They rendered vital first aid to an injured motorist who was bleeding profusely from a neck wound, and climbed a pole to telephone for an ambulance. Their actions were credited with saving the motorist's life. The citations were presented at a dinner held recently in Fredericksburg to honor Weierhausen and Belcik.

PRODUCT DEPENDABILITY IN EVERY PHELPS DODGE


Type PL—Paper Insulated Lead Sheathed
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Type ED—Exchange Area—Duct Type
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installation at various offices are generally fairly well dispersed, in the long run, a fairly average condition as to service life may reasonably be expected.

"With a small utility however," he said, "most of its original equipment is installed at one time. This means that the depreciation rate applicable to the investment will increase as growth requires the addition of facilities having a shorter life. In view of this situation, it was suggested that a conservative view be taken of the service life of the original equipment so as to guard against the possibility of failure to recover the higher charges required in later years. A general average depreciation rate for central office equipment and telephones is about 5 percent. An average, of course, means that instances will exist where higher or lower rates are applicable.

"In checking annual reports of telephone utilities, present plans call for computing depreciation expense of the utility by use of general average depreciation rates. If the result indicates a significant variation from the amount shown in the report, the telephone utility will be notified with the suggestion that it review its depreciation rates and inform the Commission as to whether in its judgment a change should be made in the depreciation expense. It is hoped that by this procedure provisions for depreciation can be kept reasonably in line with requirements for the necessary recovery of the investment."

D. H. Hansen, division manager, LaCrosse Telephone Co., was elected president for the '61-'62 term. Phil Bigley, vice president, Viroqua Telephone Co., and past president of Eagles International, was named vice president. Ray J. Riordan, full time association secretary-treasurer, was given the new title of executive v.p.

New directors elected were H. M. Smith, secretary-treasurer, Badger State Telephone and Telegraph Co., Neillsville; J. F. O'Connell, operations vice president, General Telephone Co., Madison and Howard Teasdale, president, Monroe County Telephone Co., Sparta.

Directors re-elected were Harris G. Allen, president, North-West Telephone Co., Tomah; D. H. Hansen and G. A. Rutenbeck, general commercial manager, Wisconsin Telephone Co., Milwaukee.

Illinois Association Head Stresses "Service Challenges" In Address To Convention

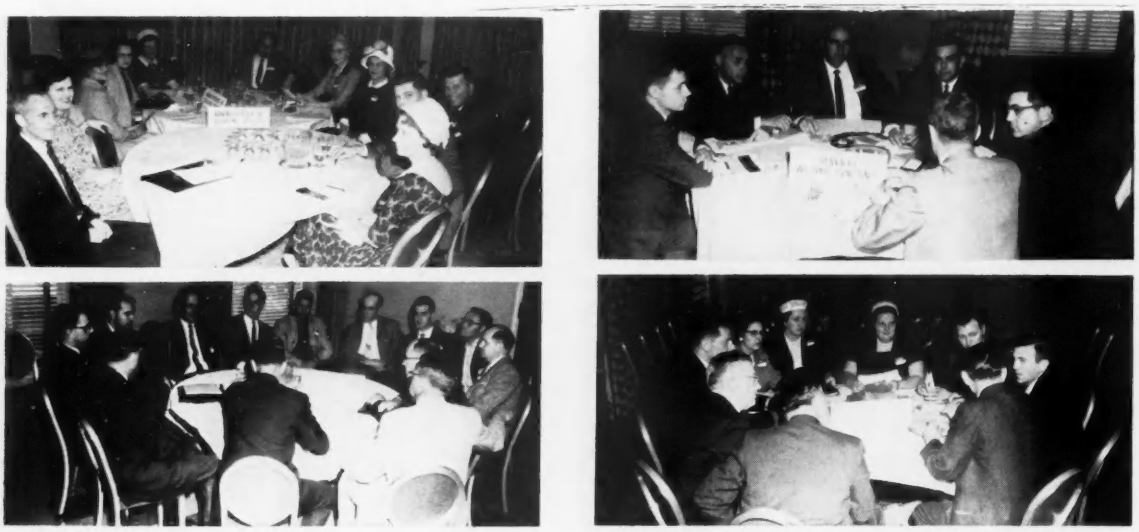
"ONE of the greatest challenges to the industry is to continue to improve telephone service," Daniel A. Schaefer, president of the Illinois Telephone Association, told delegates to the association's 66th annual convention.

Addressing the convention group at the Hotel Pere Marquette, Peoria, Schaefer stated, "The very heart of the telephone industry is service. Service is our business. We cannot be satisfied with present service; the status quo is *not* good enough."

Pointing out that the concept of good telephone service is ever changing, Schaefer stated that, "we certainly will have to look to others to assist in making good service impressions on the industry's DDD subscribers."

"Immediately," he said, "our information and assistance operators become larger in stature because they will be a major contact with the customer. We will be judged by the speed, accuracy and dispatch in handling these calls. In this area, there are opportunities for improving telephone service and making favorable service impressions.

"I think the industry generally considers universal DDD service as its ultimate goal. If this materializes, then isn't it true, that our customers will be coming in contact, telephonically, with as many PBX operators, receptionists or telephone



Round Table Clinics were featured at recent convention of the Illinois Telephone Association. Over 400 members of the telephone industry attended the meeting at the Pere Marquette Hotel, Peoria.

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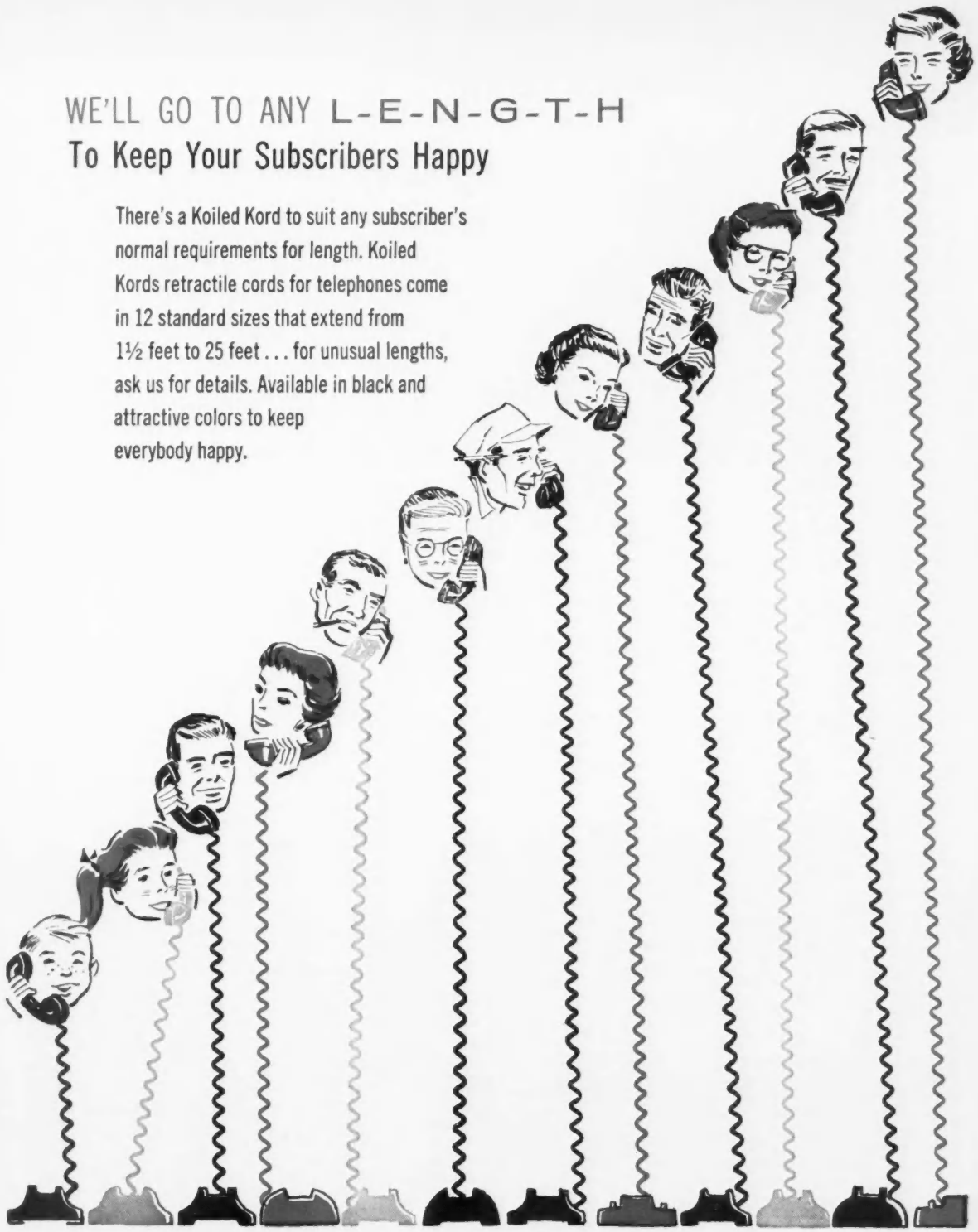

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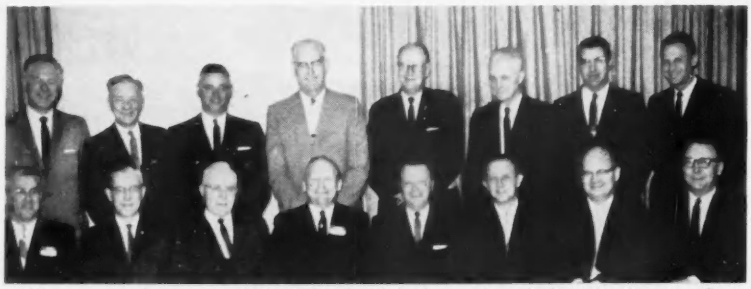


Officers and directors of the Illinois Telephone Association, back row (l. to r.): A. T. RENN, Chicago; K. L. SCHROEDER, Freeport; R. M. WOPAT, Bloomington; DONALD F. ANDERSON, Geneseo, vice-president; M. A. Kugler, Okawville; BEN B. BOYNTON, Springfield, general counsel; M. M. WANDREY, Des Plaines; and JAMES STICE, Altamont. Front row (l. to r.): RUSSELL LOGUE, Casey; F. S. COAKLEY, Dixon; ROLAND SCHMIDT, St. Jacob; DANIEL A. SCHAEFER, Sycamore, president; JOHN F. THARP, Springfield, executive secretary; R. W. BRITT, Bloomington; RAY J. ALTER, Galesburg, treasurer; and O. M. WESTRUP, Mattoon. R. P. Reuss of Springfield was not present for the picture.

attendants, of all kinds, as they will be coming in contact with our own telephone operators? These girls, employed by our own customers, will play a large part in determining the telephone service impression that our customers receive. Generally, an operator is an operator, in the eyes of our customrs, and the telephone user will not distinguish between the two types. Therefore, we should develop a more thorough assistance and training program for PBX operators and telephone attendants. We cannot sit idly by — here are opportunities to improve telephone service."

Emphasizing that DDD should be considered only a beginning, Schaefer stated, "We cannot be satisfied with what we have, we must strive to assimilate new types of service."

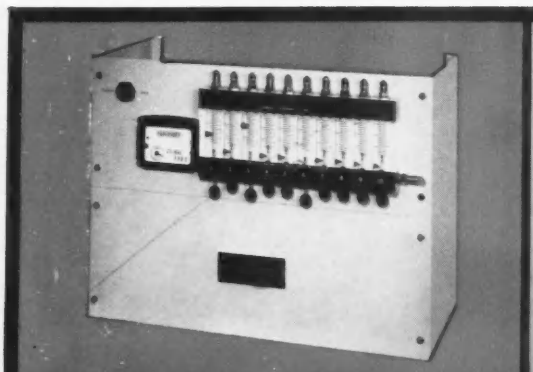
"We must be flexible," he said, "we must adopt new changes — better still, we must strive to create new and better services. There is nothing as permanent as change. We must keep the telephone industry dynamic. There is a positive hazard in lazy thinking about good enough telephone service. Our subscribers have faith that we in the telephone industry will keep it modern. This is a great service; to see that our subscribers will always have an opportunity for the best."

S. R. Collis, director, Transmission Systems-Marketing, Illinois Bell Telephone Co., Chicago, told the Illinois convention "we are an industry with tremendous opportunity and responsibility — we have strong competition for these opportunities — we can only succeed by doing a better job than the competition and we must succeed to assure that America continues to have the integrated communication system it must have to survive."

"With Data-Phone, WATS and TELPAK, in addition to our old standby offerings," he said, "we have a complete line to meet the challenge of the new communication era. But like a weekend do-it-yourselfer, having the best and most complete set of tools does not guarantee success. We must develop our marketing skills if we are to obtain professional results. As managers of the business, we must be sure that the man we send out to sell the customer has more talent and is better prepared than the competition . . .

"How do we accomplish this? First, we must recognize that the services we will be selling are much more complex and technical in nature than any provided before. This, to me, means we must carefully select our salesmen — this includes being honest with ourselves — selecting the men from the boys at once and developing a sales outfit of a high order. After selecting the right people — people who are aggressive, imaginative, technically competent, well spoken, willing to work hard, and above all, have confidence in the services we are selling, we must train them thoroughly.

"They must know our service of-



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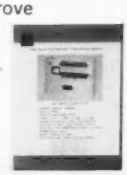

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ferings and equipment and the business equipment to which they interconnect forward and backward — they must be equally well grounded in the competition's products. They must be taught how to recognize communication applications, how to develop them for the benefit of the customer and how to sell these applications. Believe me, it's going to cost real money for training, promotion and the salaries required to get, and hold, the grade of people we're talking about — also, we're going to have to face some tough personnel decisions within our existing organizations, but let's not forget that the rewards will be tremendous in the years ahead."

Defining business climate as the net result of *all* outside conditions affecting the cost and ease in operating a business in a truly rewarding way in the community, William Q. Leach, public relations coordinator, General Telephone Co. of Ill., Bloomington, told the Illinois convention that these "conditions may be social, economical or political."

"They may have their origin in the local or national level," he said. They may be tangible, such as a tax rate and property appearance and they may be intangible, such as the general attitude of the community towards the company, etc."

To correct and build a better business climate, Leach suggested four steps:

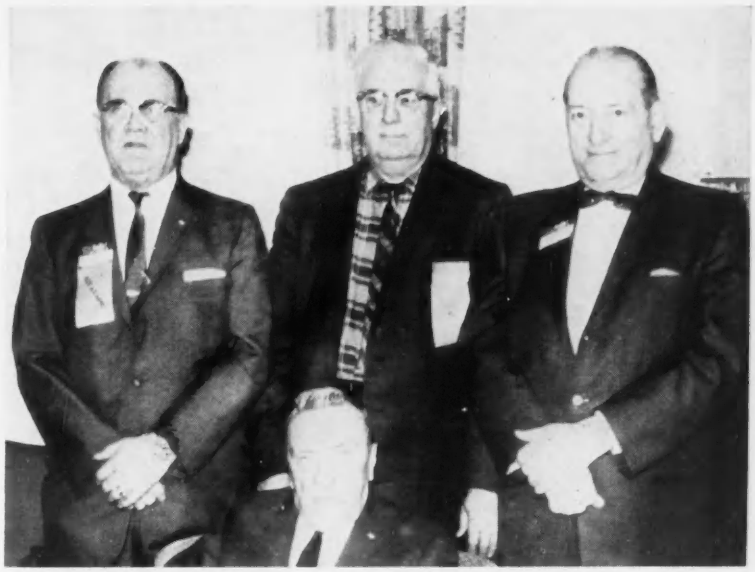
(1) Appraise the situation. The appraisal is the basis of determining what must be done to maintain and improve a business climate. Essentially, the appraisal guide and similar surveys help determine the degree to which a community possesses the desirable characteristics of a favorable climate.

(2) The appraisal leads to the inevitable conclusion of setting objectives or goals which is the *second step* to a better business climate: Establishing objectives, both short and long range, which improve the business climate.

(3) Developing a plan and timetable for carrying out the objectives through company and employe activity. In line with the familiar approaches a good part of Step Three is the pre-selling or conditioning campaign, promoting a desire for the product — developing support for the change you hope to bring about in the business climate.

(4) Working with others.

"It is important to remember that if the business climate condition you expect to constructively influence involves governmental or legislative action — and many of them do — it must be publicly popular for the government officials to act," Leach stated, "so long as we have a government by consent of the governed — so long as government officials depend directly or, in the case of appointed officials, indirectly upon the results of the ballot box — public officials will be responsive to the wishes of the electorate. Few legislators can afford or even want to act counter to the desires of their constituents but if no broad public sentiment is stimulated on a particular issue, the legislator will either respond to militant minority pressures or he will act in conformity with his own best action in the absence of substantial evidence of public opinion."



These four men represent a total of 190 years in the telephone industry. Left to right (standing): FRED ADDIS, General Telephone Co. of Ill., Bloomington; J. G. HARDY, retired Illinois Telephone Association secretary; FRED BECKMAN, retired Illinois Bell Telephone Co. employe and now with the Illinois Commerce Commission in Springfield; and seated, R. T. RAYBORN, Harris-McBurney Co., public utility contractors, Pleasant Plains, Ill.

Directors elected for three-year terms are: A. T. Renn, Bell-Independent Relations manager, Illinois Bell Telephone Co., Chicago; K. L. Schroeder, vice president, Northwestern Telephone Co., Freeport; M. M. Wandrey, vice president and division manager, Middle States Telephone Co., Des Plaines; O. M. Westrup, vice president, Illinois Consolidated Telephone Co., Mattoon; and Robert M. Wopat, president, General Telephone Co. of Ill., Bloomington.

At the meeting of the Association's Board of Directors, all incumbent officers were re-elected for a one year term. They are: Daniel A. Schaefer, president; Donald F. Anderson, vice-president; Ray J. Alter, treasurer; and John F. Tharp, executive secretary.

Kraft Named Manager Of TIC Space Division

LOUIS Kraff, Jr. has been appointed to the position of manager of the Space Instrumentation Division of TIC of Acton

He was formerly chief of the Rocket and Instrumentation Branch of the Air Forces' Geophysical Research Directorate. Previously he was Project Engineer on high altitude geophysical research rocket programs.

Waldron Appointed Okonite Chief Engineer

RICHARD C. WALDRON has been named chief engineer at The Okonite Co., Passaic, N. J. wire and cable fabricating subsidiary of Kennecott Copper Corp. He succeeds Dr. Robert J. Wiseman, who retired on December 31, 1959, but who now serves as Okonite's cable consultant.

Immediately after his graduation from Harvard University in 1928, where he received his B. S. degree in electrical engineering, Waldron started his career at Okonite. His activities have involved work not only in the research, engineering and product development departments, but have also extended into the Marketing Division, where he has served since 1955 as manager of engineering.

Waldron initiated the development of rubber-insulated x-ray cables in 1934, when the only available cables for this purpose were made in Europe. He has been granted a number of patents for special joint designs and was co-inventor of "Dualay" self-supporting aerial cable. He has done extensive research concerning the effects of lightning and surface discharge on medium and high voltage cables.

Okonite Appoints Blodgett Director Of Research

DR. ROBERT B. BLODGETT has been appointed director of research of The Okonite Co., Passaic, N. J., wire and cable fabricating subsidiary of Kennecott Copper Corporation.

After graduation from Northwestern University with a B. S. degree in chemistry and physics, Dr. Blodgett received his Ph. D. in physical and organic chemistry from the University of Wisconsin in 1940. A member of Okonite's research staff since 1954, he has been concerned with research activities at Okonite's Paterson, N. J., plant, in the capacity of manager of paper cable research. Prior to joining Okonite, Dr. Blodgett was chief chemist at Robbins Mills, Inc., Clarksville, Va., for six years, and in previous years was engaged in research at Du Pont Cellophane Research in Buffalo, N. Y., and at Du Pont Viscose Rayon Research in Richmond, Va.

A Fellow of the American Association for the Advancement of Science, Dr. Blodgett is also a member of the American Institute of Electrical Engineers and the American Chemical Society, as well as of Sigma Xi, Phi Beta Kappa and Alpha Chi Sigma. He has frequently presented tehnical papers on cables to engineering groups and has written many articles.

Reliable Electric Co. has announced the appointment of JAMES C. MITCHELL to its field sales froce. Mitchell's headquarters will be in Houston, Texas. He will serve the Gulf Coast area of Texas, Louisiana and Mississippi.

GEORGE C. NADERMAN has been appointed to purchase, sales and development with Sherron Metallic Corp. Formerly buyer for the Western Electric Company Naderman is one of several additions to the servicing and development divisions of the Sherron Metallic Corp.

ROBERT E. DEAL has been elected vice president-sales of the James R. Kearney Corp. In his new capacity, Deal will supervise and co-ordinate the activities of the Kearney sales force; he will also direct and coordinate the company's sales and marketing programs.

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Man to Manage Area Sales for Wire and Cable Company.

Require person familiar with Independent Telephone Industry, telephone distributors, and REA specifications.

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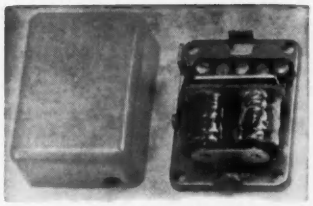

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Griebel and Hollis Assigned New Duties At ITT Kellogg

ITT KELLOGG, Chicago, has announced it will centralize the manufacturing and marketing of telephone and switching products in one group.

According to G. A. Strichman, president, the move "is primarily designed to enable ITT Kellogg to more adequately serve its customers in the Independent telephone industry."

Heading the new unit will be Richard H. Griebel, vice president and general manager of ITT Kellogg. He will be responsible for the manufacture and marketing of telephones and central office equipment in addition to commercial and industrial products, and will direct the nationwide sales organization and manufacturing plants in Kansas City, Mo., Corinth, Miss., and Chicago.

Griebel has announced that William P. Hollis, vice president will assume duties as manager of marketing for the new group. Hollis has been in charge of planning and product development for several years.

ITT Kellogg's other operations also include its Chicago-based communication systems department and the transmission department with headquarters at Raleigh, N. C.

Kahn, Phillips, & Fitzgibbon To New Posts For AE Co.

FREDERICK L. KAHN has been named chief telephone engineer at Automatic Electric Co., Northlake, Ill., a subsidiary of General Telephone & Electronics Corp.

Kahn, director of the telephone switching systems development department, has been with the Northlake company since 1923.

FREDERICK L. KAHN

JOHN P. FITZGIBBON

In 1960, he was the recipient of Automatic Electric's highest honor, the Talbot G. Martin Award, presented annually by the Strowger Automatic Clubs, an employe organization, in recognition of his outstanding contribution to the art and science of communication.

Kahn has specialized in the field of automatic switching, and holds a number of patents on telephone switching systems improvements. A lifelong student of telephony, he studied at the University of Frankfurt and Institute of Technology in Berlin. He began his association with Automatic Electric as an equipment engineer, and has held supervisory positions in systems analysis, equipment proposals, and cost studies.

Mr. Kahn's post as director, telephone switching systems development, will be taken over by William J. Phillips.

WILLIAM J. PHILLIPS

Phillips has served since 1959 as chief staff sales engineer for General Telephone System Companies. He began his career with Automatic Electric in 1937. During World War II, his services were loaned to the U. S. Navy as supervisor of exchange installations in the Pacific, for which he received the Navy's Meritorious Civilian Award. Since his return to Automatic Electric in 1946, he has worked in South America and the U. S. Succeeding Phillips will be John P. Fitzgibbon.

Fitzgibbon joined Automatic Electric in 1936. During World War II, he attended various telephone and carrier specialist schools.

After returning to Automatic Electric in 1946, he served in apparatus, carrier, transmission, equipment, and circuit engineering. In 1958, Fitzgibbon became supervisor of circuit standards and adaptation.

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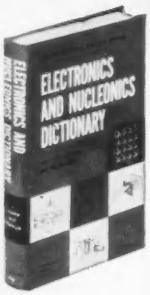

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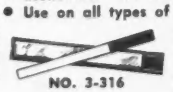

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

What Is "Temporary"?

WEBSTER defines the word "temporary" as meaning, "*Lasting for a time only; existing or continuing for a limited time; not permanent; ephemeral; transistory.*"

But that definition, official as it is, does not seem to apply to the "temporary" increases in the federal tax on gasoline or on telephone service.

The latest of these supposedly "temporary" boosts became law about a year ago. It was for one cent a gallon, bringing the total federal tax to four cents. The cent increase was due to expire June 30.

Maybe it will — and maybe it won't. It is proposed to extend it again — no doubt on another "temporary" basis. Then, to add insult to injury, it is also proposed that an additional half-cent a gallon tax be tacked on. This, too, would be "temporary."

Well, if these efforts succeed, Webster should start defining "temporary," as it applies to gasoline taxation and telephone service, as being a synonym for "permanent." The irony is that state and federal taxes combined on gasoline — which is an absolutely essential commodity — now average almost 50 per cent of the price of the fuel before tax. Out and out luxuries don't carry a tax anywhere near as heavy as that. The motorist is being made the goat — and it's high time he started bleating at the top of his lungs. And look at the telephone excise tax: This so called "temporary" tax has been around so long even Washington is embarrassed.

Lost — $228 Billion!

WHO GETS hurt when inflation sets in, and the dollar depreciates?

A report made by the Economists' National Committee on Monetary Policy may help you answer that question.

It says that a loss of over $228 billion, or 57 per cent, in purchasing power has been experienced by savers on average holdings in six categories for the period 1939 to 1959-60 because of this depreciation. The six categories are U. S. savings bonds; time deposits in banks; savings capital in savings and loan associations; life insurance in force; annuities paid out, and social security trust and unemployment funds.

Just about everybody has been hit, in one or more of these savings categories. And most of the people, obviously, have small or moderate means. The inflationary blow is particularly cruel to those who live on fixed incomes, as provided by annuities, social security payments, and so on.

The dollar's value in purchasing power has gone down by more than half, in a dismayingly short period of time. Will we have the strength, the wisdom, and the political courage to save what is left of it?

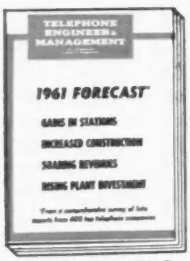
"Whitest, Brightest Flame"

THE AMERICAN system of commerce provides the "whitest, brightest flame of hope" in the world today. And American "businessmen could save the world" — but they can't do it with a "big, fat platitude."

That striking observation was made by President Walter W. Straley of Pacific Telephone Northwest, before a joint meeting of the Rotary and Kiwanis Clubs of Portland.

This is a highly rational and well-grounded attitude. The businessman who devotes himself entirely to the affairs of his own enterprise is only doing half the job. What is needed is an articulate business community that "sells" not just products and services, but the ideals and principles that made this country great and powerful, and that have given more good things to more people than any other system ever devised by man.

Many business leaders have urged that businessmen take a far larger interest in the problems that confront the town, the state, the nation, and the world, and make their influence felt. If business fails to provide leadership, it will have only itself to blame if its standing grows less and less in the eyes of the people at large.



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- Power savings — requires just 1/3 to 1/10 the power of other ringing generators.

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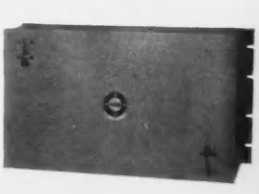

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